

FIG. 1

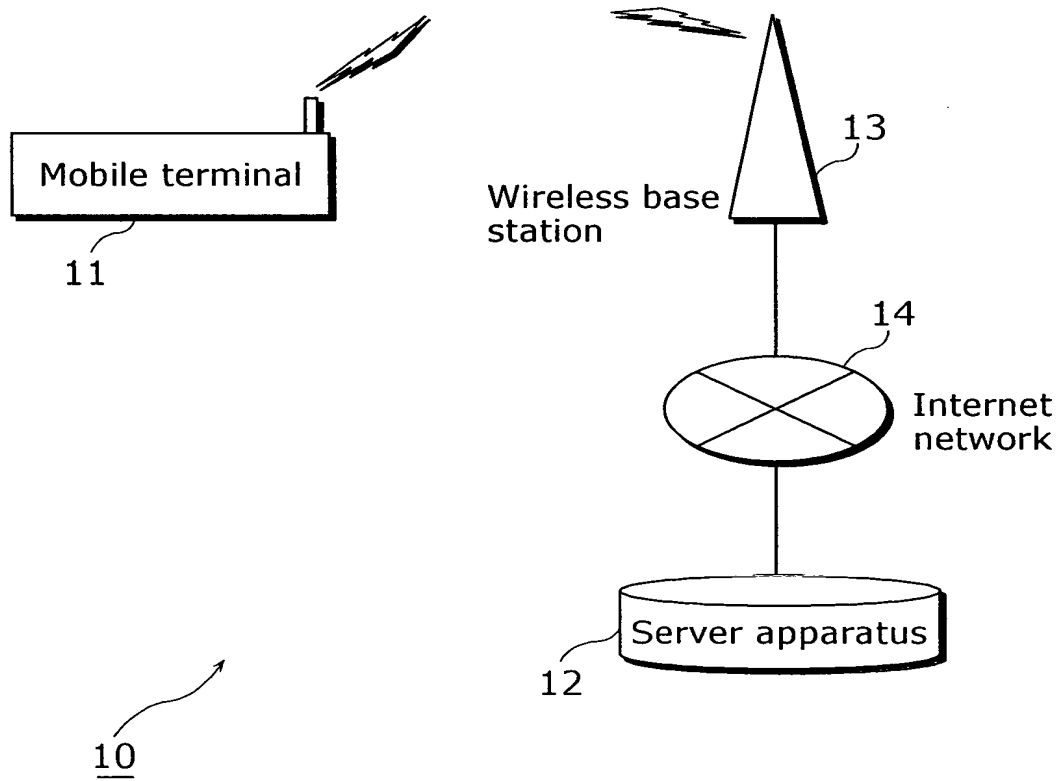


FIG. 2

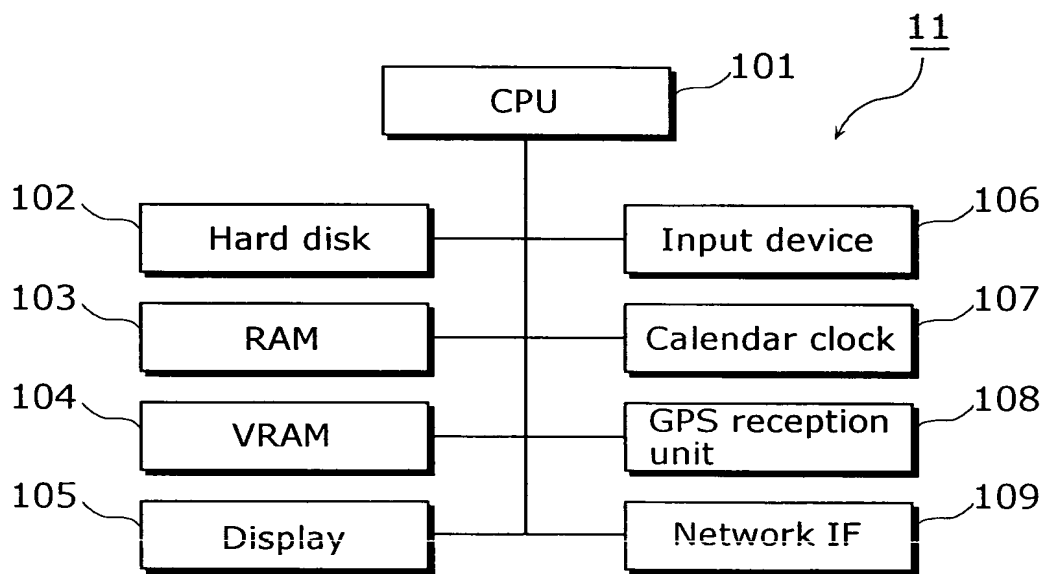


FIG. 3

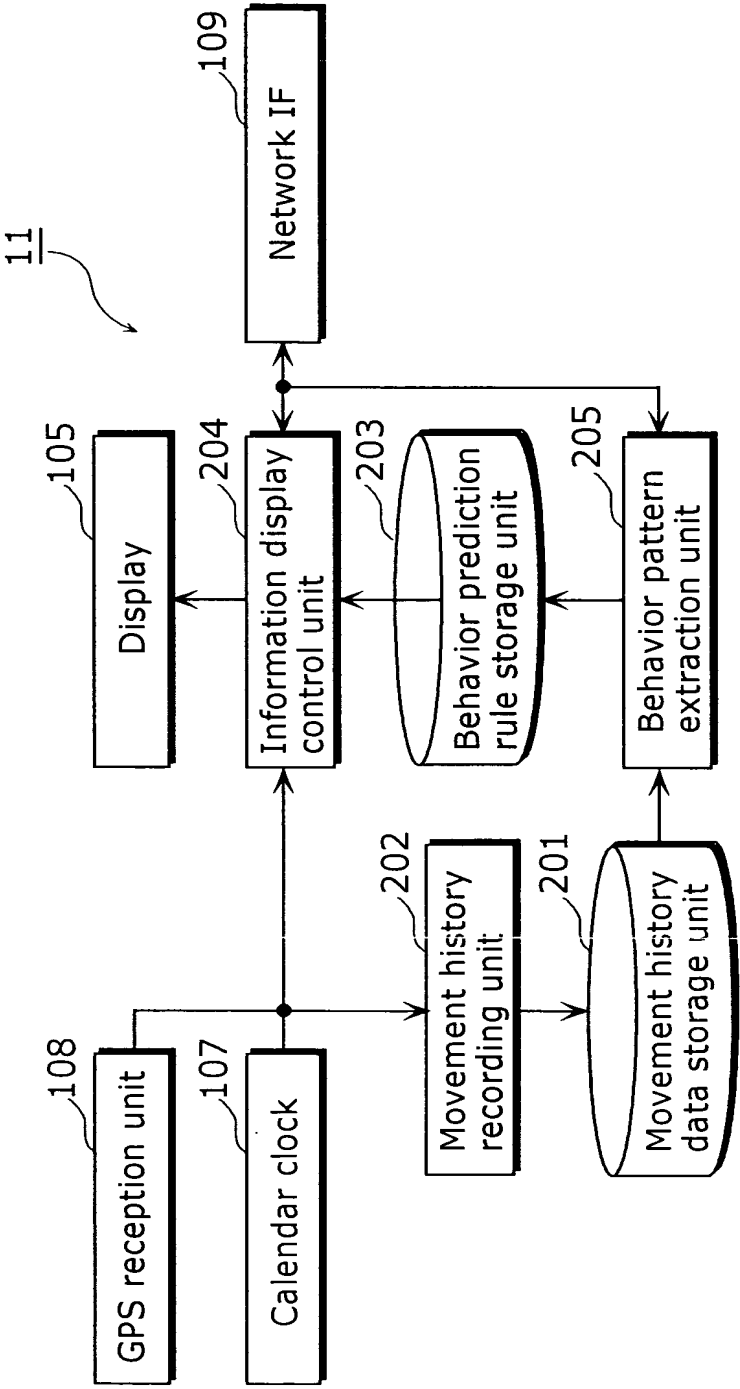


FIG. 4

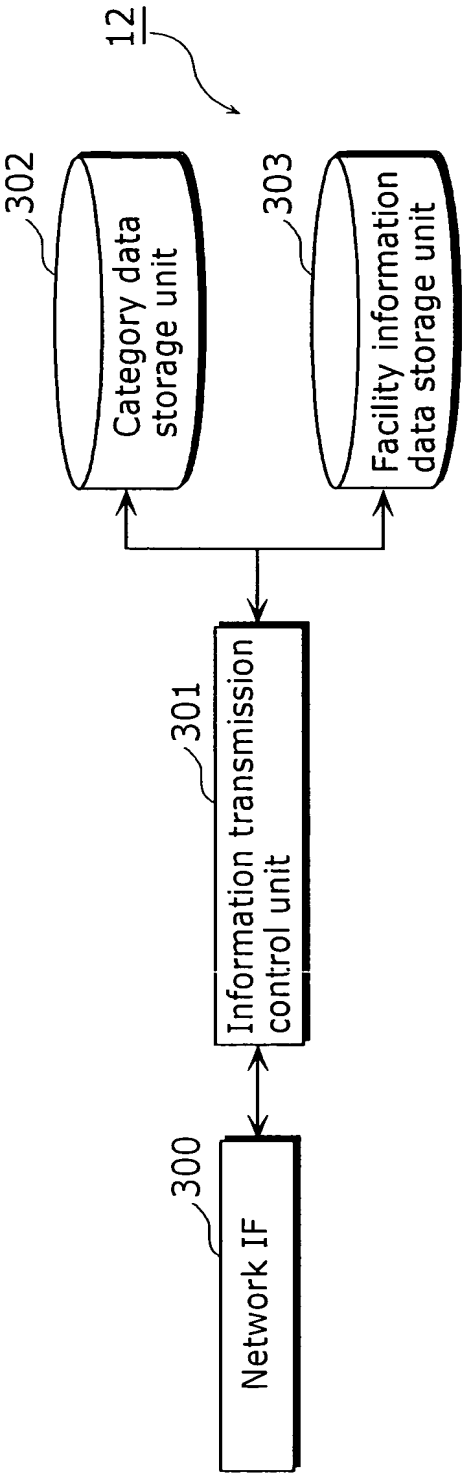


FIG. 5

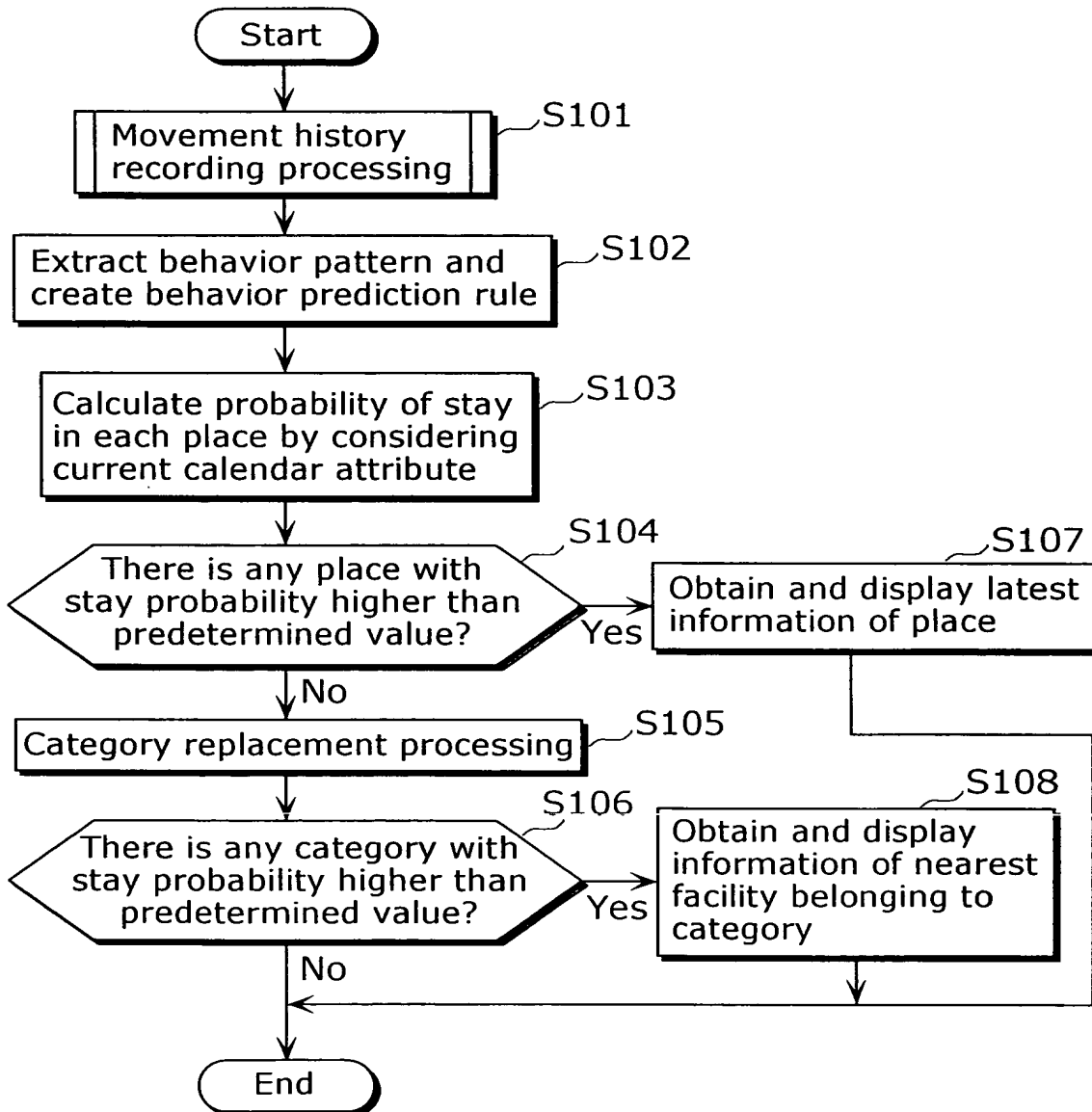


FIG. 6

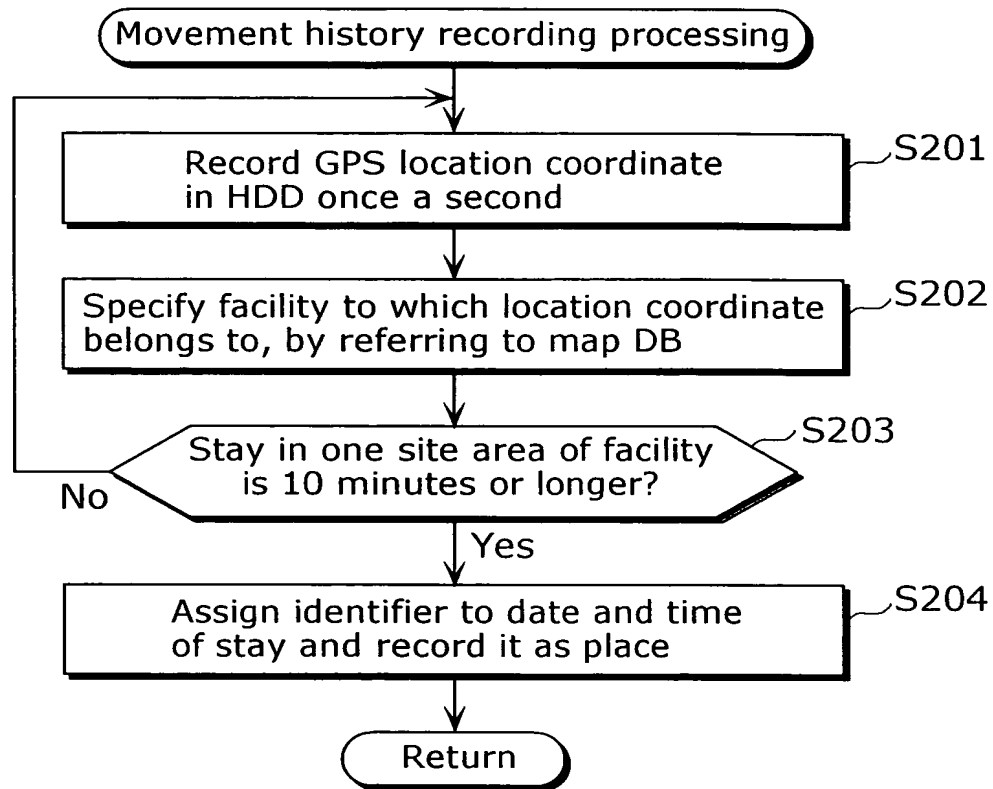


FIG. 7

Date and Time	Location Coordinate
⋮	⋮
(Tue) Feb. 4, 2003, 10:23:34	E1 east longitude, N1 north latitude
(Tue) Feb. 4, 2003, 10:23:35	E1 east longitude, N1 north latitude
(Tue) Feb. 4, 2003, 10:23:36	E1 east longitude, N2 north latitude
⋮	⋮

FIG. 8

Facility Identifier	Site Area (Upper-left Coordinate of Rectangle, Length and Width)
Facility 1	e1 east longitude, n1 north latitude, 10m, 10m
Facility 2	e2 east longitude, n2 north latitude, 20m, 10m
Facility 3	e3 east longitude, n3 north latitude, 15m, 10m
Facility 4	e4 east longitude, n4 north latitude, 20m, 20m
⋮	⋮

FIG. 9

Date and time	Place
⋮	⋮
(Sat) Feb. 1, 2003 18:00~18:20	Facility 2 (Regal Host Keihanna)
(Sat) Feb. 1, 2003 18:50~19:20	Facility 4 (Book Born)
⋮	⋮
(Sat) Feb. 8, 2003 18:15~19:00	Facility 2 (Regal Host Keihanna)
⋮	⋮

130

FIG. 10

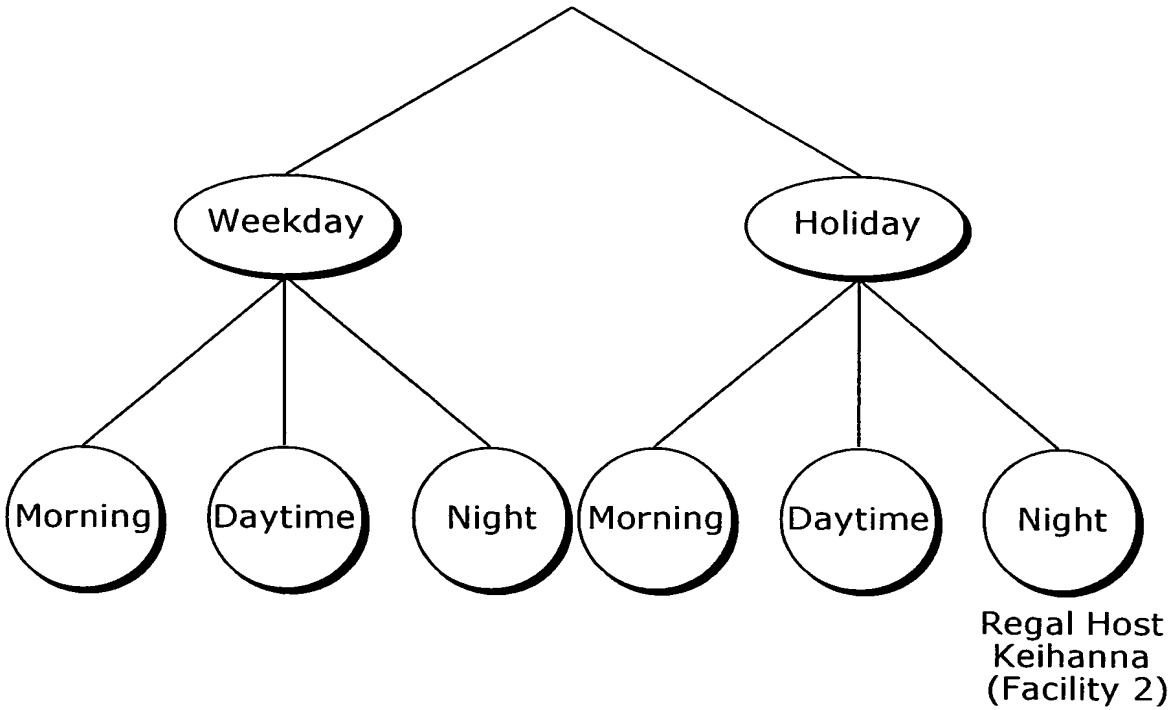


FIG. 11

Date and Time	Location of Stay	Number of Stays	Probability of Stay
Holiday night	Facility 1 (Boss Burger Keihanna)	78	52%
	Facility 2 (Regal Host Keihanna)	45	30%
	Facility 3 (Mary's Coffee)	13	8%
	⋮	⋮	⋮
Weekday daytime	Facility 1 (Boss Burger Keihanna)	2	1%
⋮	⋮	⋮	⋮

140

FIG. 12

303a

Facility Information Data			Latest Information
Facility Identifier	Facility Name		
Facility 1	Boss Burger Keihanna	Croquette Burger ¥190 Now on Sale ...	
Facility 2	Regal Host Keihanna	Nostalgic Western Food Festival ...	
Facility 3	Mary's Coffee	Fresh Pot of Espresso...	
Facility 4	Book Born	Hot Latest Novel Arrived ...	
:	:	:	
Facility A1	Ghyuutami	Beer ¥100 until 19:00 ...	
Facility A2	Kurokiya	Half-price for Drinks ...	
:	:	:	

FIG. 13

Category Data

302a

Facility Identifier	Category
Facility 1	Restaurant
Facility 2	Restaurant
Facility 3	Cafe
Facility 4	Book store
⋮	⋮
Facility A1	Pub
Facility A2	Pub
⋮	⋮

FIG. 14

303b

Facility Identifier	Category	Facility Name	Location Coordinate	Latest Information
Facility 1	Restaurant	Boss Burger Keihanna	East longitude E1, North latitude N1	Croquette Burger ¥190 Now on Sale ...
Facility 2	Restaurant	Regal Host Keihanna	East longitude E2, North latitude N2	Nostalgic Western Food Festival ...
- - - -	- - - -	- - - -	- - - -	- - - -
Facility A1	Pub	Gyuutami	East longitude E11, North latitude N11	Beer ¥100 until 19:00...
Facility A2	Pub	Kurokiya	East longitude E12, North latitude N12	Half-price for Drinks ...
- - - -	- - - -	- - - -	- - - -	- - - -

FIG. 15A

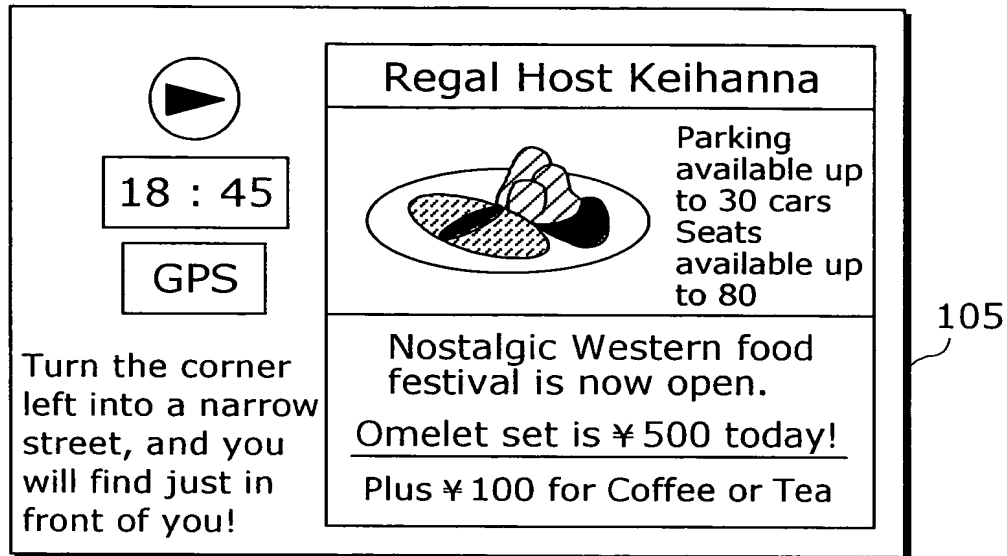


FIG. 15B

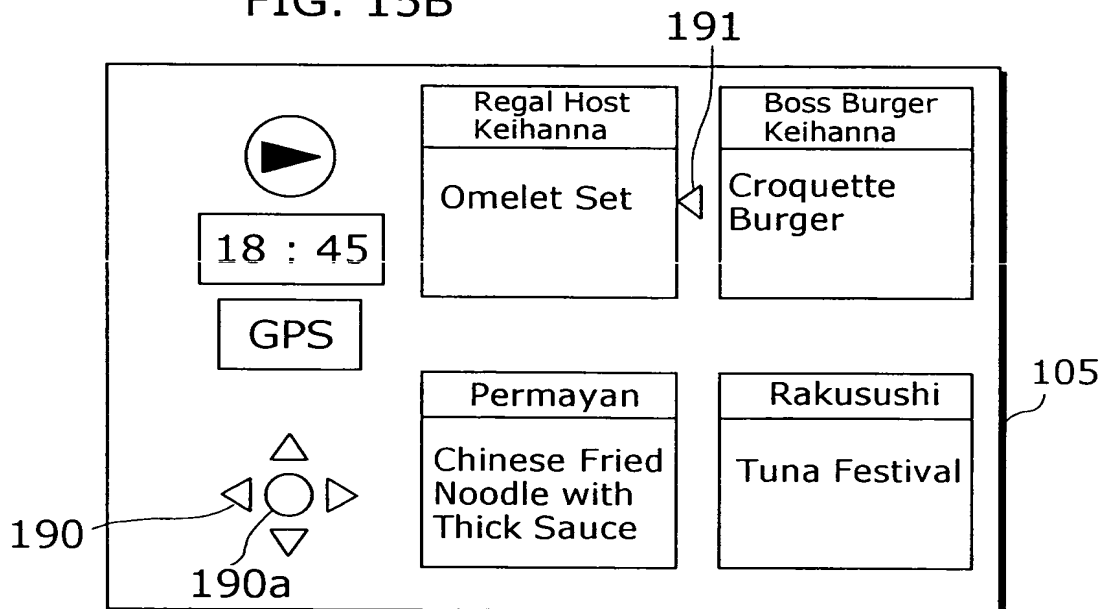


FIG. 16

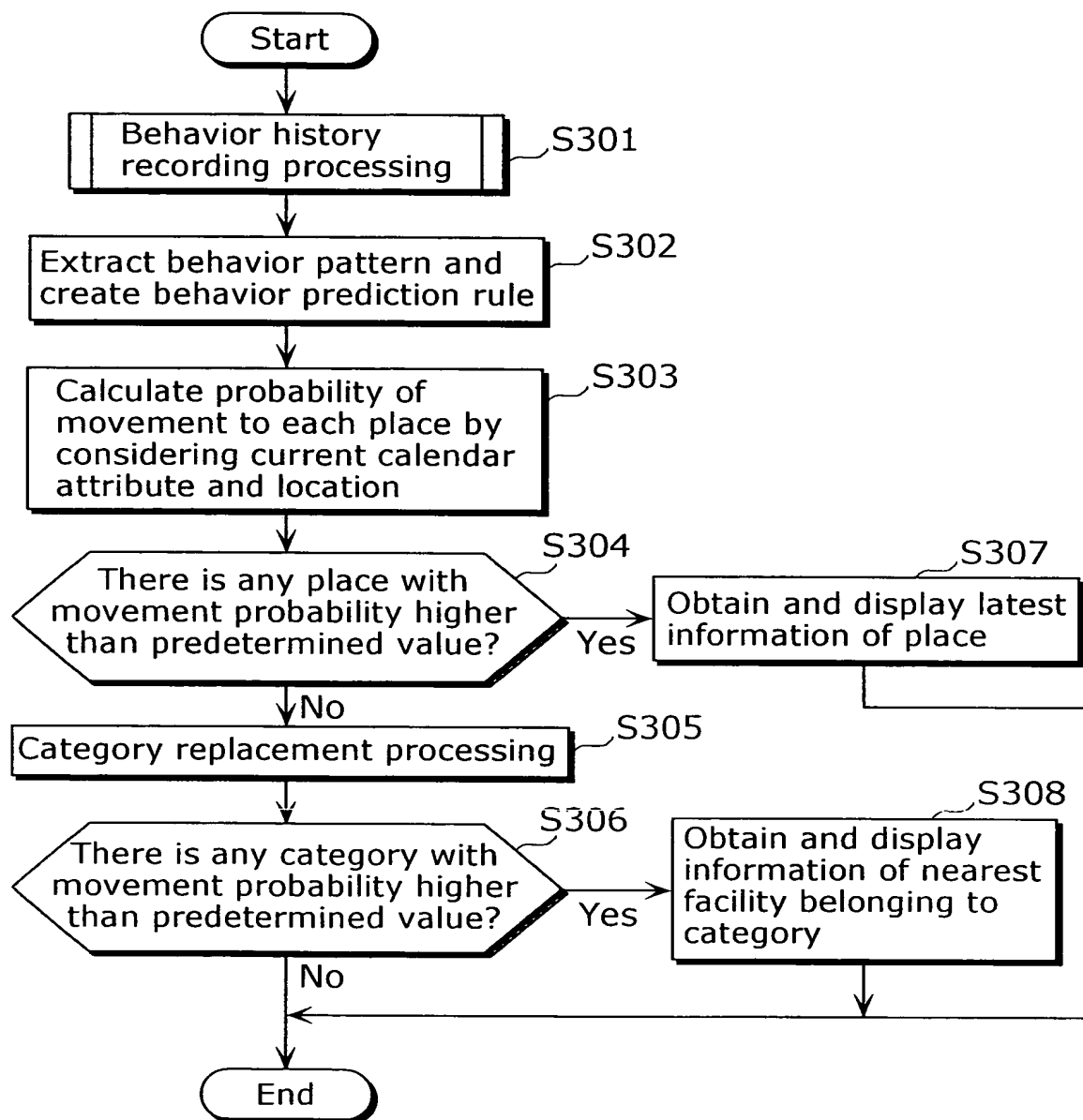


FIG. 17

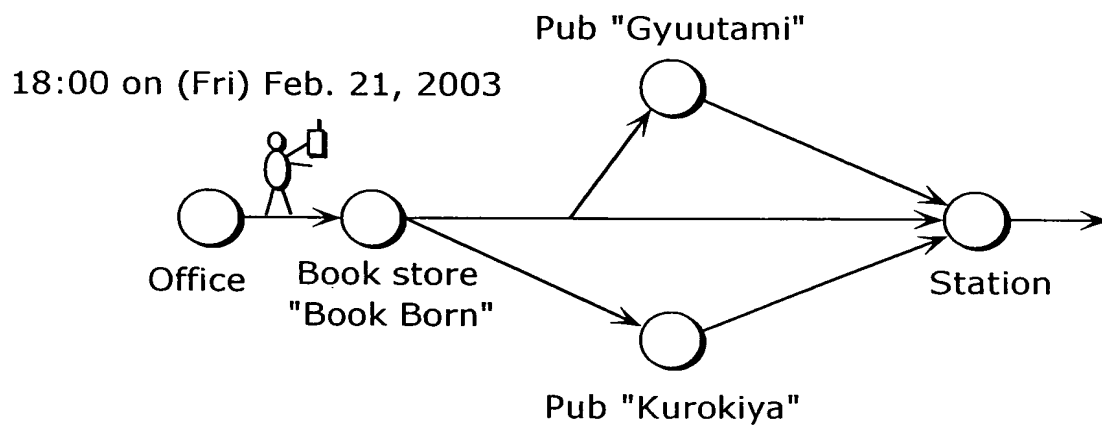


FIG. 18

Date and Time	Place or Path
⋮	⋮
(Fri) Feb. 7, 2003 9:00~18:00	Facility A0 (Office)
(Fri) Feb. 7, 2003 18:10~18:30	Facility 4 (Book Born)
(Fri) Feb. 7, 2003 18:00~18:10	Facility A0 → Facility 4
(Fri) Feb. 7, 2003 18:45~21:00	Facility A1 (Gyuutami)
⋮	⋮
(Fri) Feb. 14, 2003 18:20~18:30	Facility A0 → Facility 4
(Fri) Feb. 14, 2003 19:10~21:30	Facility A2 (Kurokiya)
⋮	⋮

230

FIG. 19

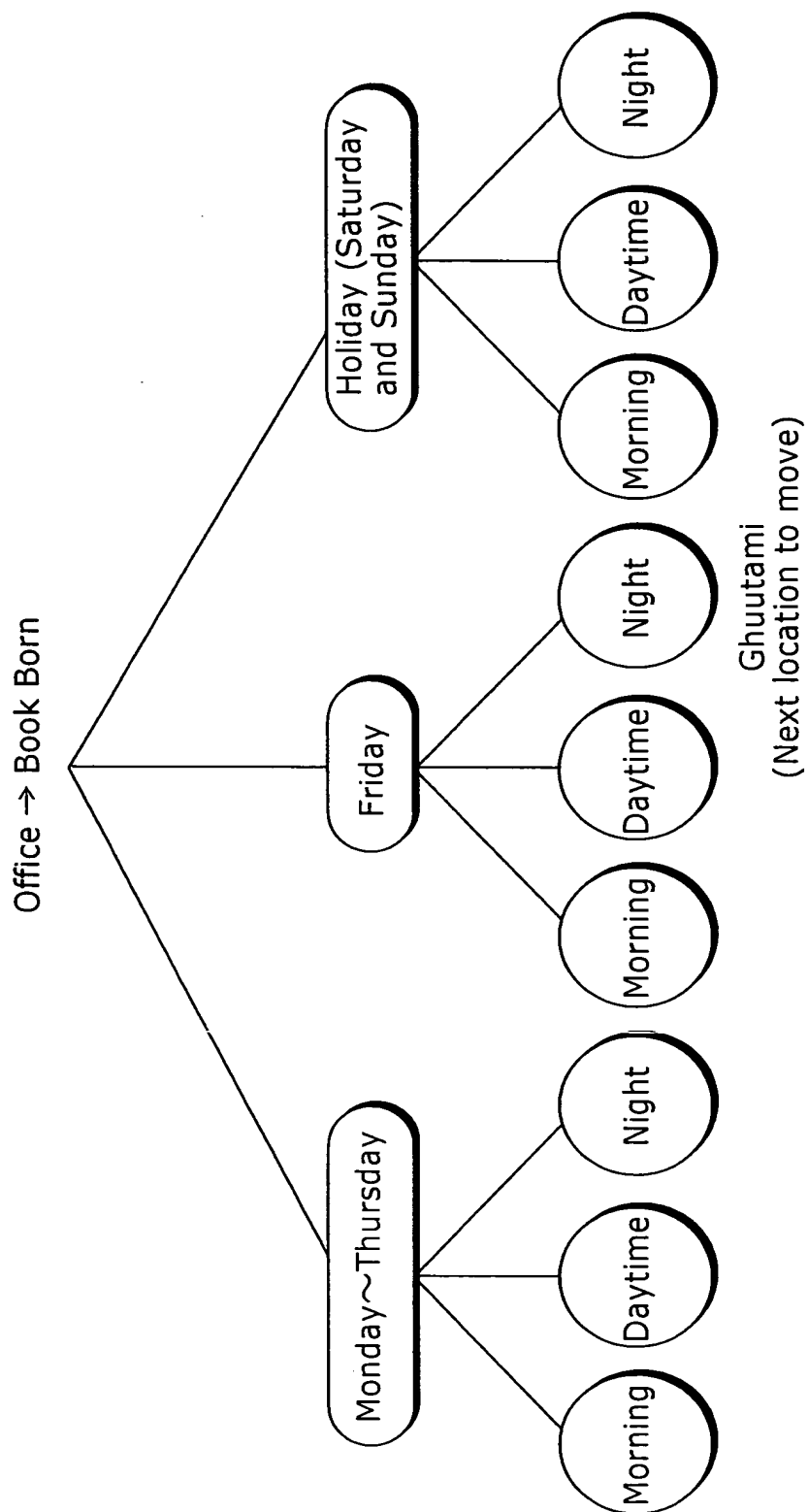


FIG. 20

Date and Time / Location	Next location	Number of movements	Probability of movement
⋮	⋮	⋮	⋮
Date and Time: Friday night Location: Facility A0 (Office) → Facility 4 (Book Born)	Facility A1 (Ghuutami)	45	60%
	Facility A2 (Kurokiya)	15	20%
	Facility A3 (Pachinko King)	3	4%
	⋮	⋮	⋮
⋮	⋮	⋮	⋮
Date and Time: holiday daytime Location: Facility 20 (Home)	Facility 21 (Department store A)	50	60%
	Facility 22 (Department store B)	10	12%
	⋮	⋮	⋮
	⋮	⋮	⋮

240

FIG. 21

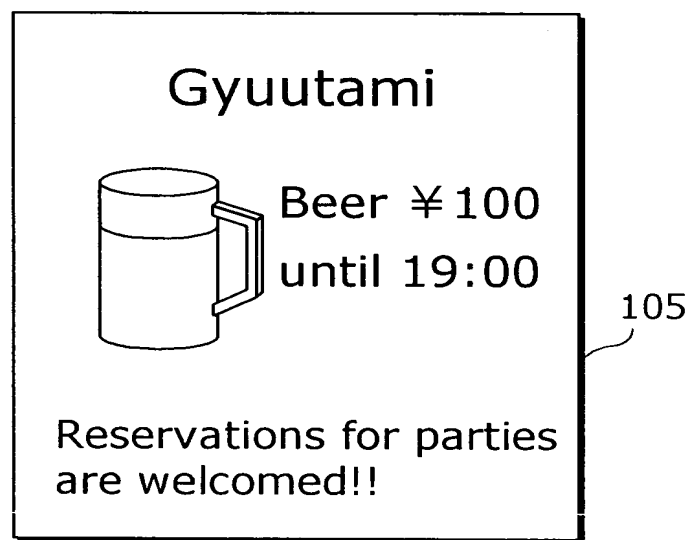


FIG. 22

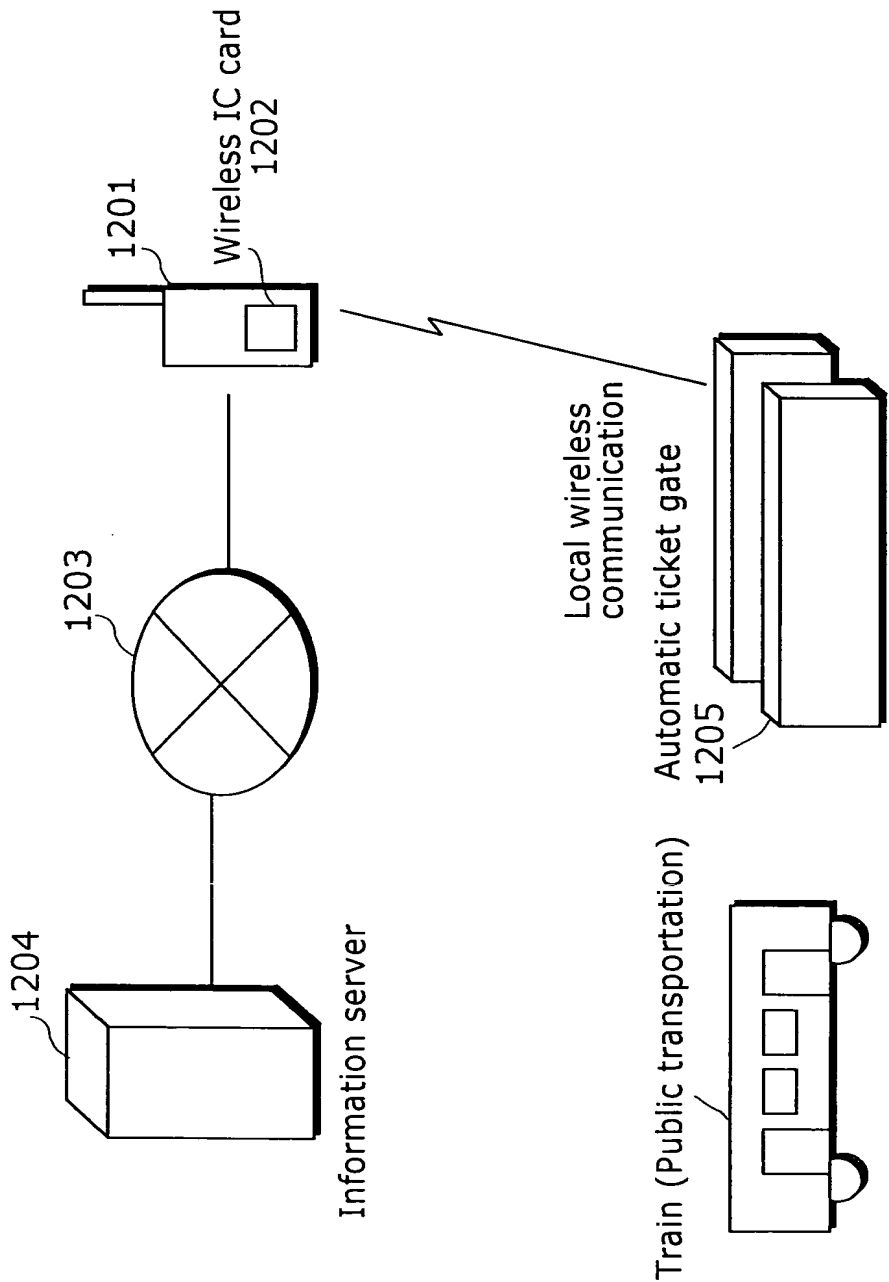
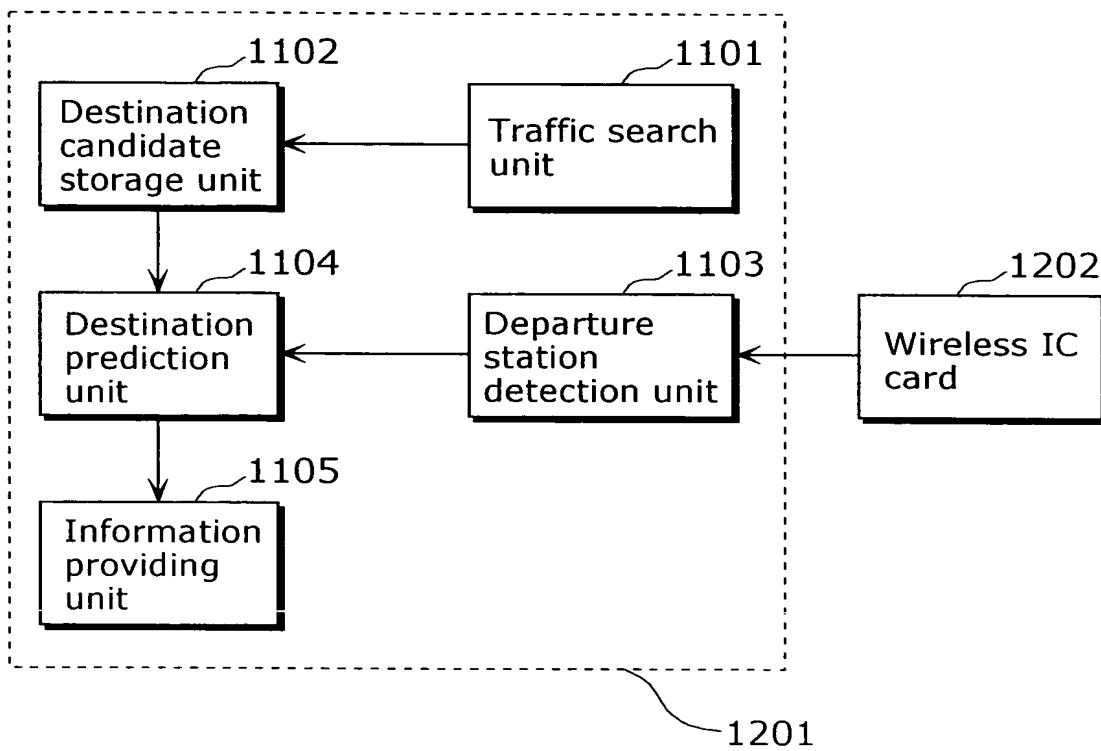


FIG. 23



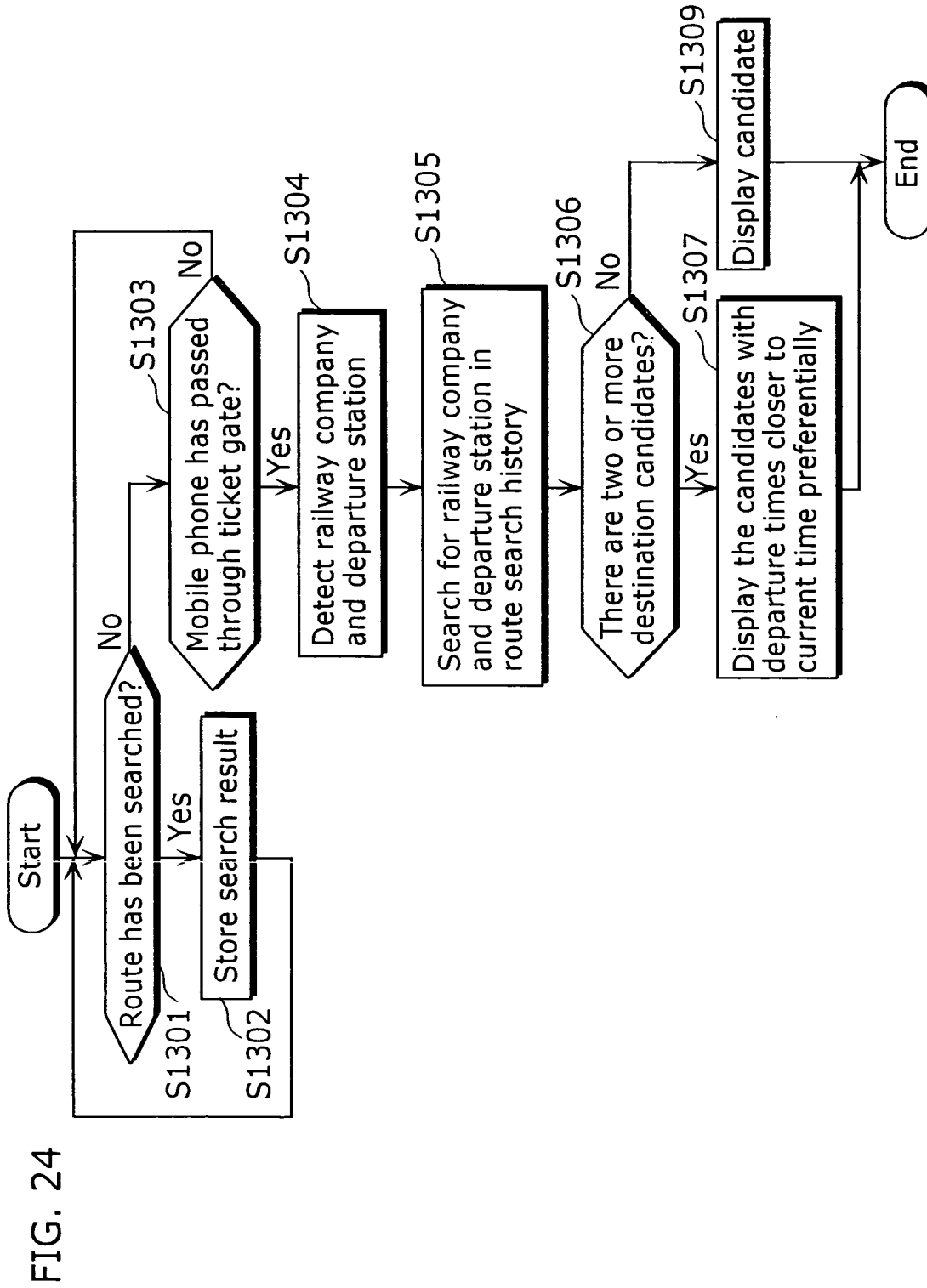


FIG. 25

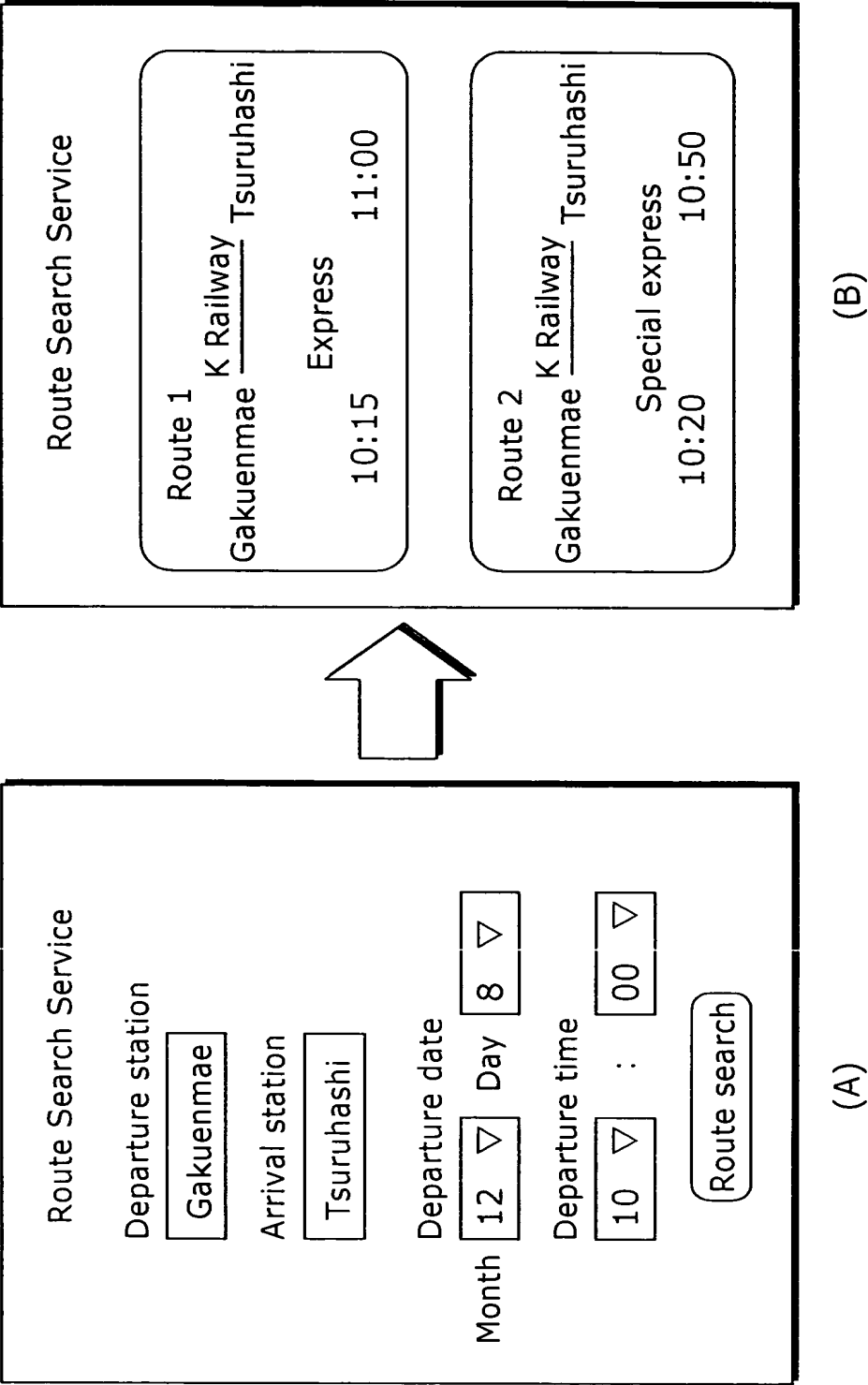


FIG. 26

Search date & time	Specified date & time (Departure time)	Departure station	Arrival station	Route (Railway)	Time required
2003/12/01/ 22:10	2003/12/08/ 10:00	Gakuenmae	Tsuruhashi	K Railway	45
2003/12/04/ 21:15	2003/12/10/ 9:00	Kyoto	Shin-Osaka	J Railway, Nishi line	64
2003/12/05/ 22:10	2003/12/15/ 10:00	Tokyo	Shinagawa	J Railway, Yama line	15
2003/12/05/ 22:15	2003/12/15/ 19:00	Shinagawa	Tokyo	J Railway, Yama line	15
2003/12/06/ 10:10	2003/12/10/ 11:00	Gakuenmae	Saidaiji	K Railway	10
...

1501

1502

FIG. 27

Route Search Service	
Predicted destination station	Estimated arrival time
Tsuruhashi	10:50
Saidaiji	10:10

FIG. 28

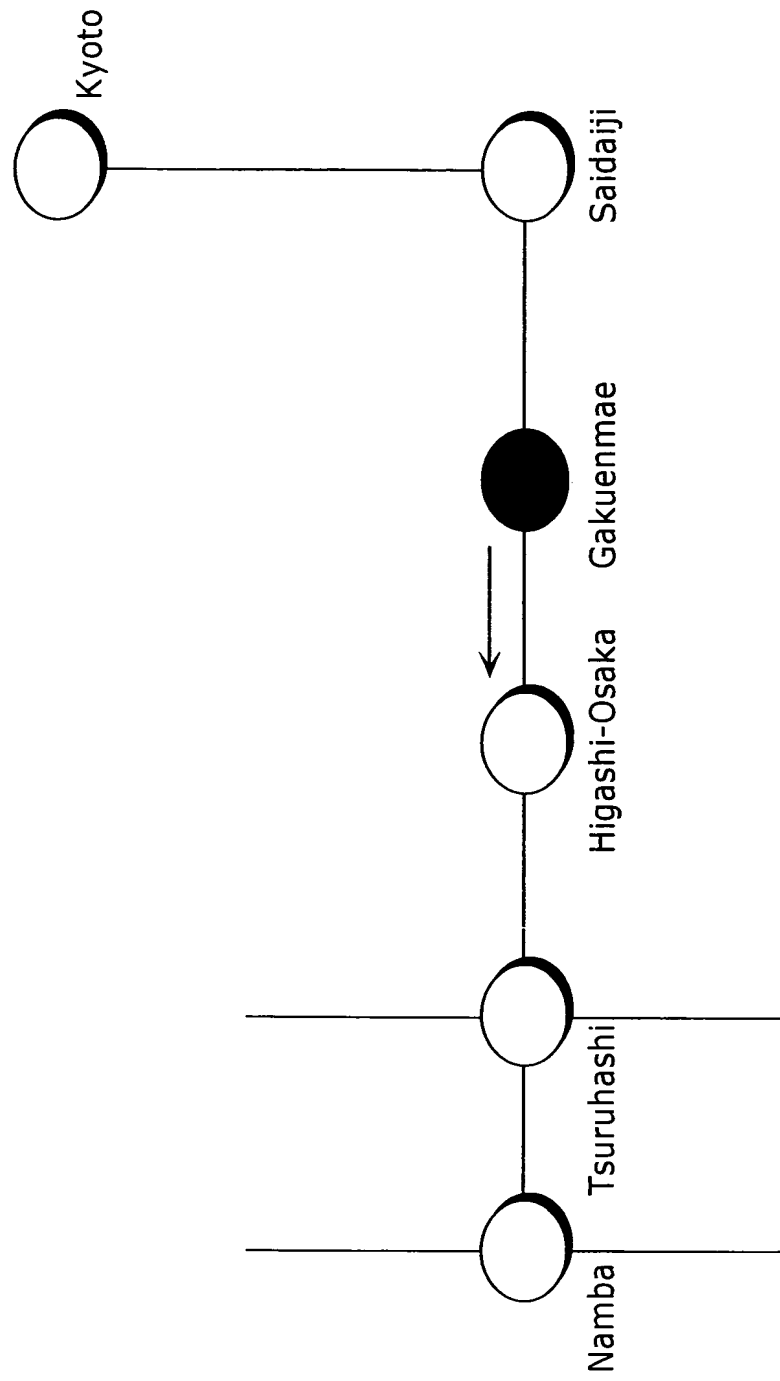


FIG. 29

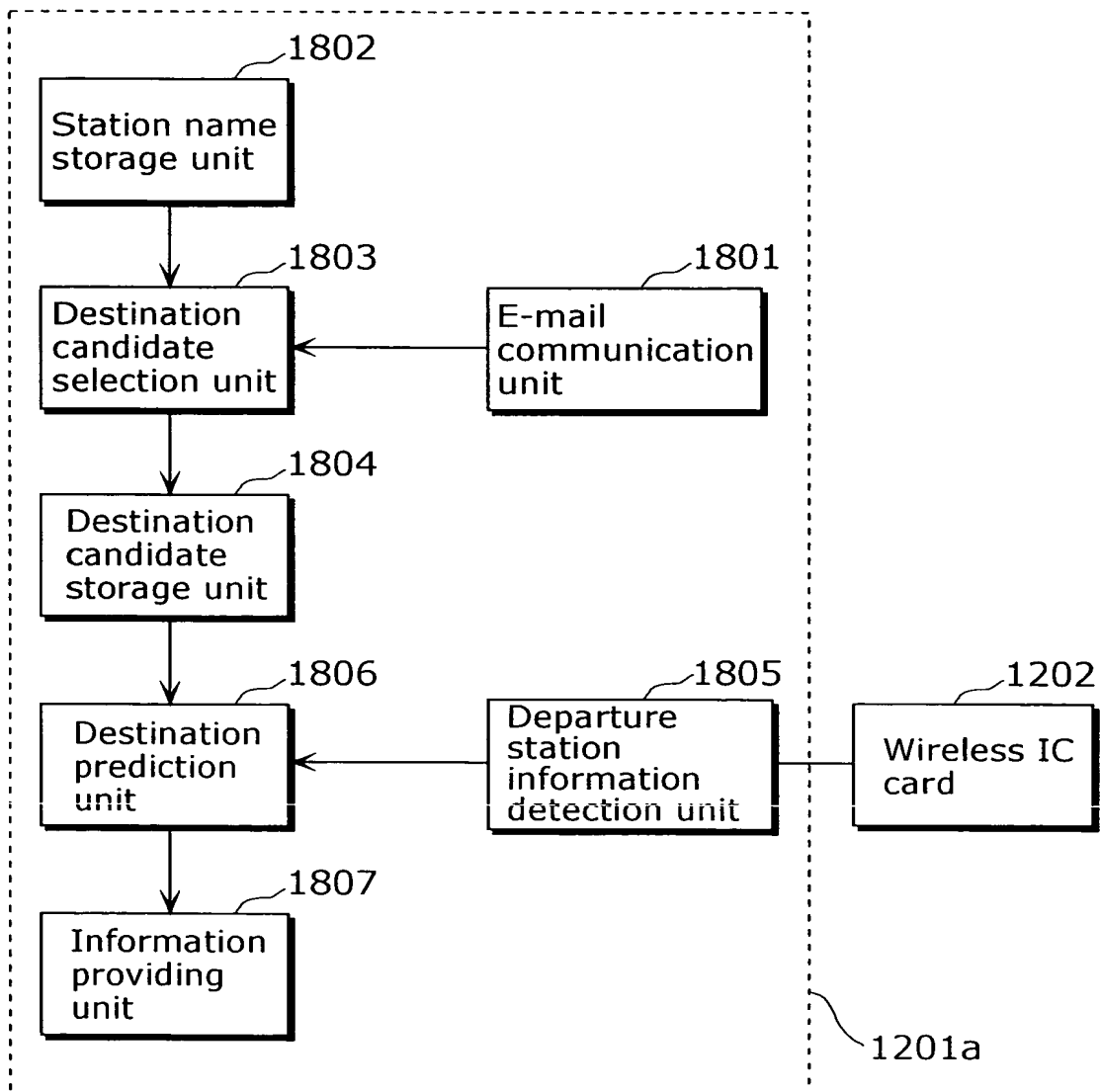


FIG. 30

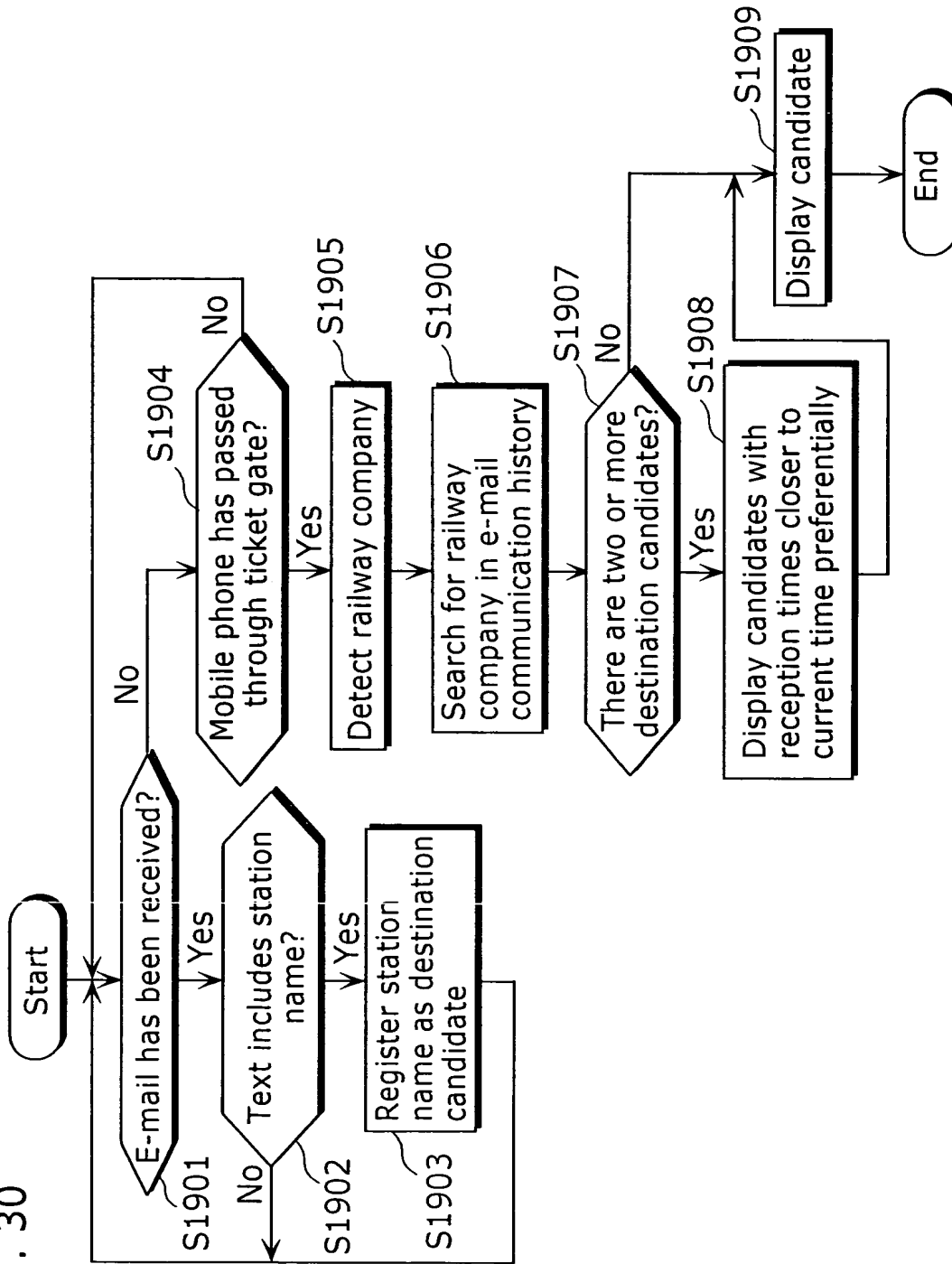


FIG. 31

Route	Station name
K Railway	Tsuruhashi, Higashi-Osaka, Gakuenmae, Namba, ...
J Railway	Osaka, Tsuruhashi, Tennoji, ...
H Railway	Umeda, Toyonaka, Ikeda, Juso, ...
N Railway	Namba, Sakai, Shin-Imamiya, ...
...	...

FIG. 32

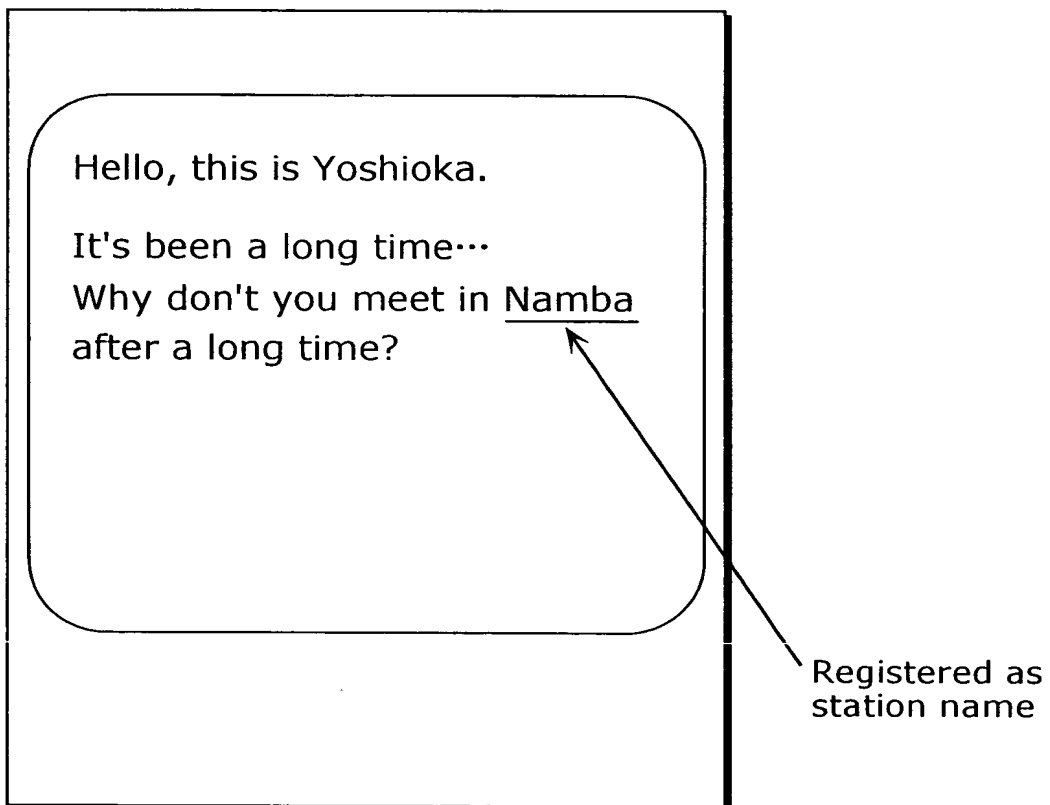


FIG. 33

Station name	Route	Registration time	Reception time	Address of receiver
Namba	K Railway N Railway	2003/10/01/ 8:23	2003/10/01/ 8:12	yosh @kkk.ne.jp
Higashi-Osaka	K Railway	2003/10/01/ 22:23	2003/10/01/ 22:05	yashik @ddd.ne.jp
Gakuenmae	K Railway	2003/10/02/ 18:12	2003/10/02/ 16:32	hito @pppp.ne.jp
Umeda	H Railway	2003/10/05/ 11:21	2003/10/05/ 10:52	ka @ppp.ne.jp
...

FIG. 34

Route Search Service	
Predicted destination station	Estimated arrival time
Namba	15:50
Higashi-Osaka	15:15

FIG. 35

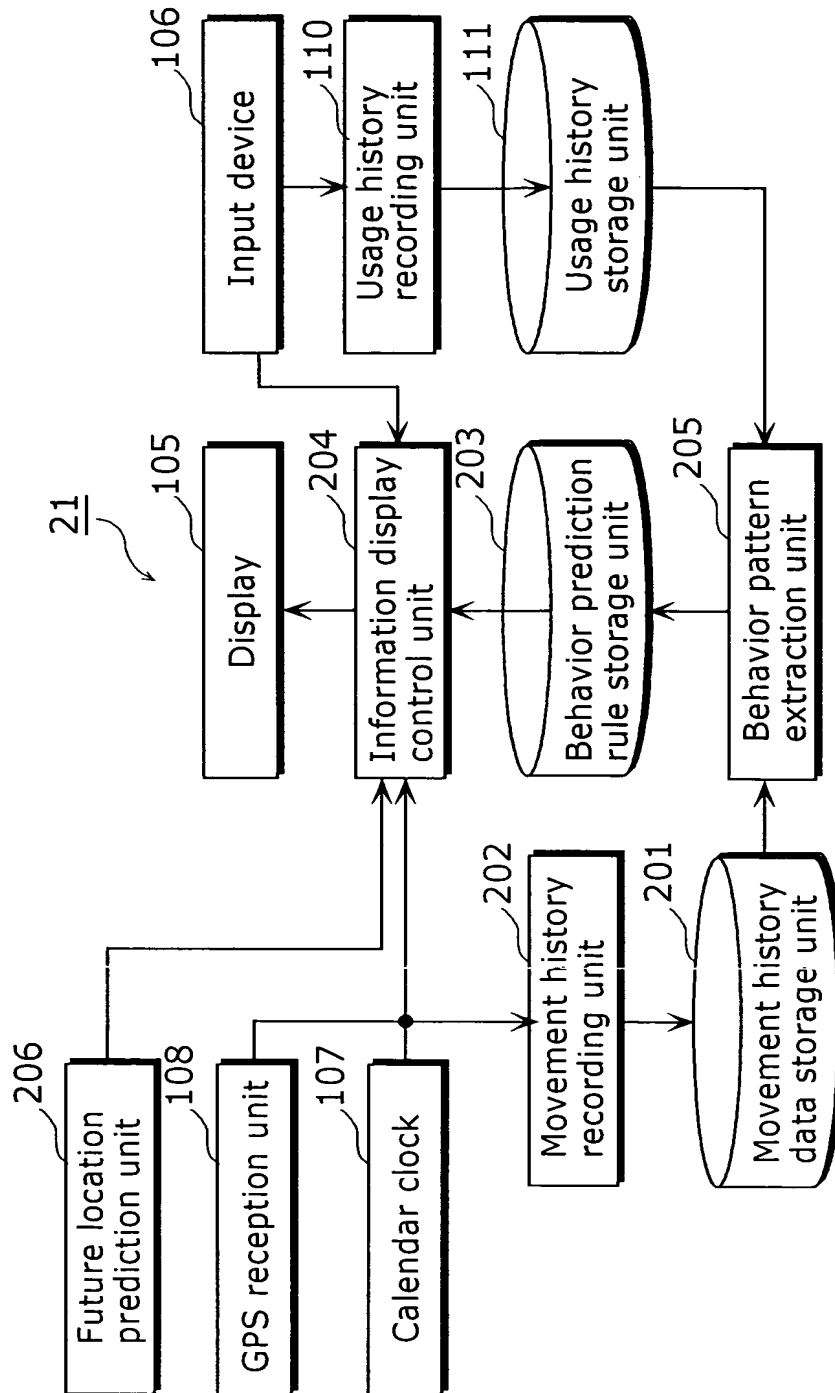


FIG. 36

Usage date & time	Usage location	Usage history
(Fri) Feb. 7, 2003 20:00	Office → Station	Application: E-mail
		Address : Kazoku@xyz.ne.jp (to Wife)
		Title: Coming home soon
		Message: I've just left the office. Please prepare meal for me.
(Fri) Feb. 7, 2003 21:45	Home	Application: E-mail
		Address: ABC . . . (Mr. Yamada, friend)
		Title: XYZ . . .
		Message: XYZ . . .
(Sat) Feb. 8, 2003 9:15	Home	Application: Game
		Game software: Game software A
		Information so far: EFG
⋮	⋮	⋮

FIG. 37

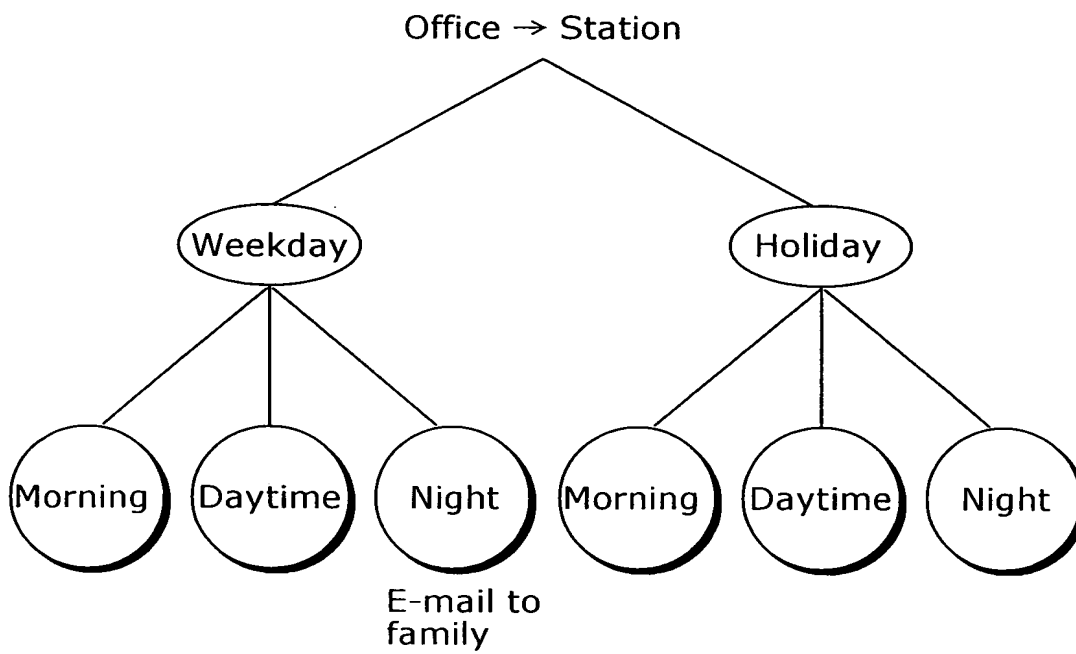


FIG. 38

320

Usage date & time Usage location	Application	Items	Number of uses	Details of usage
Date & time Weekday night Location Office → Station	E-mail	To Wife Address: kazoku...	75	Title: Coming home soon Message: I've just left the office ...
		To Friend (Mr. Yamada) Address: yamada...	15	Title: How are you? Message: Hello ...
	
	Game	Game software A	12	Information so far: EFG
Date & time Weekday night Location Home	...	Game software B	3	Information so far: HJK
	
	

Date & time Holiday morning Location Home	E-mail to Friend (Mr. Kimura)	...	24	Title: Good morning Message: Good morning. ...
	
	

FIG. 39

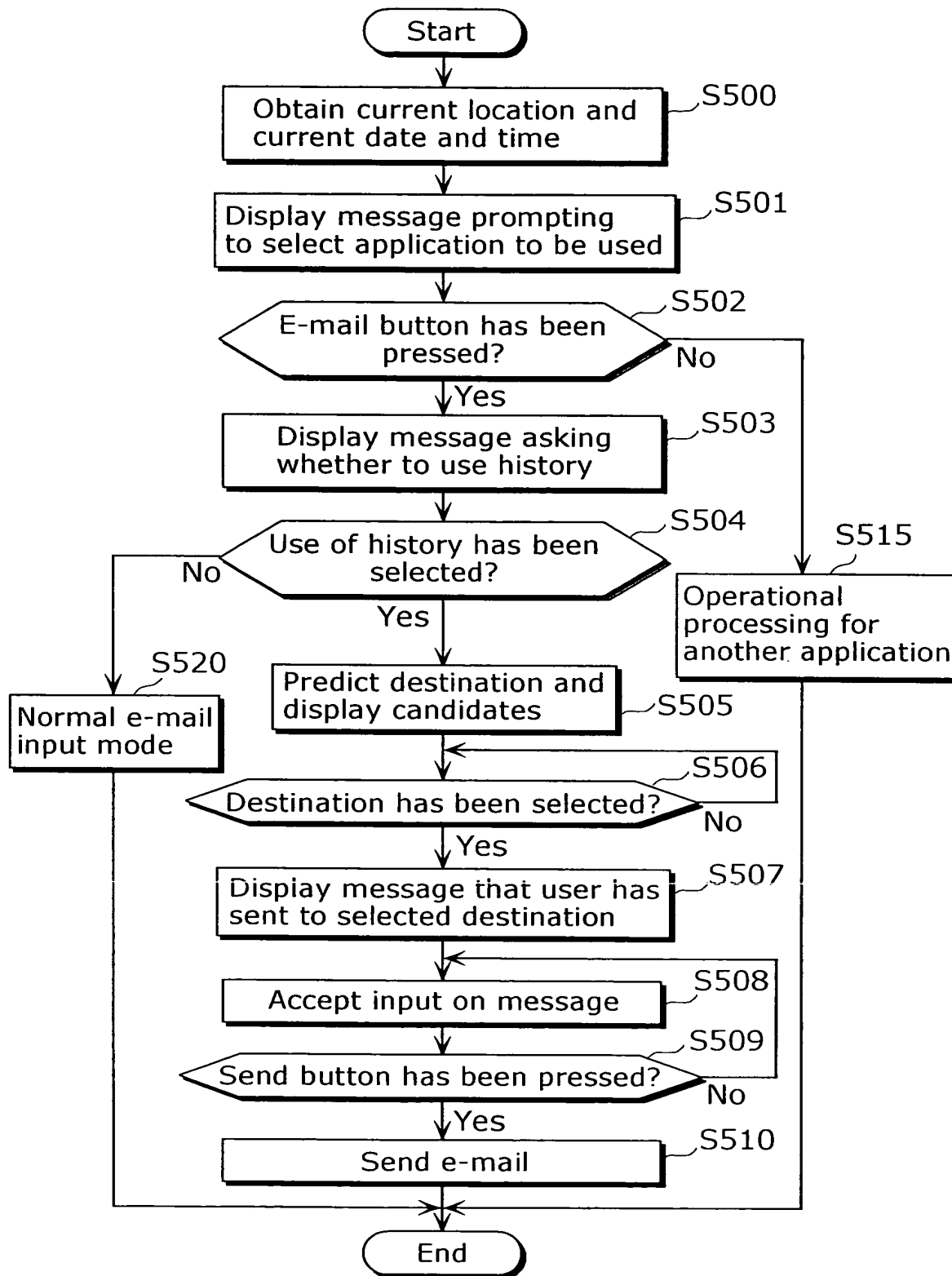


FIG. 40

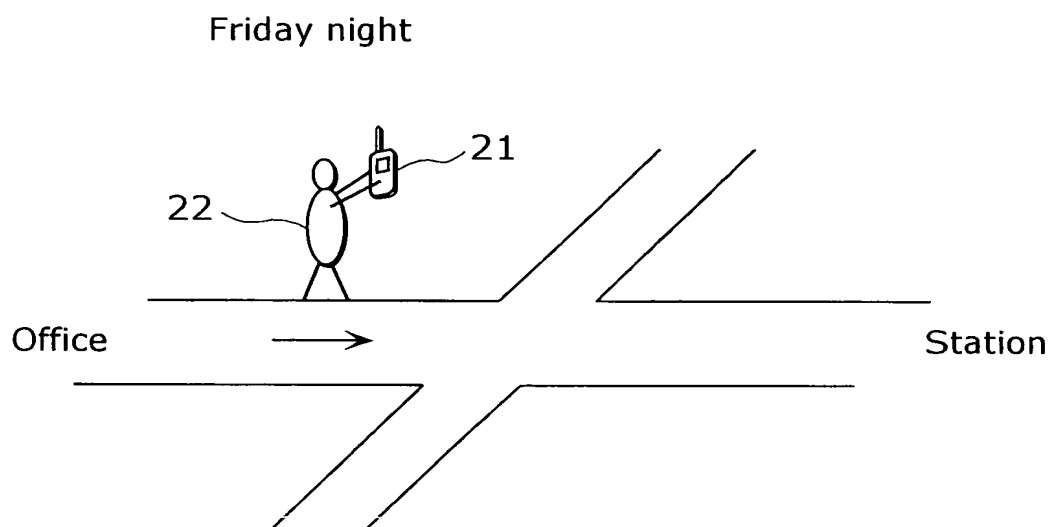


FIG. 41A

105

Select application to be used.

E-mail	◀
Game	

FIG. 41B

105

Will you use history?

Yes	◀
No	

FIG. 41C

105

Select e-mail destination.

Wife	◀
Mr. Yamada	

FIG. 41D

105

Destination: Wife

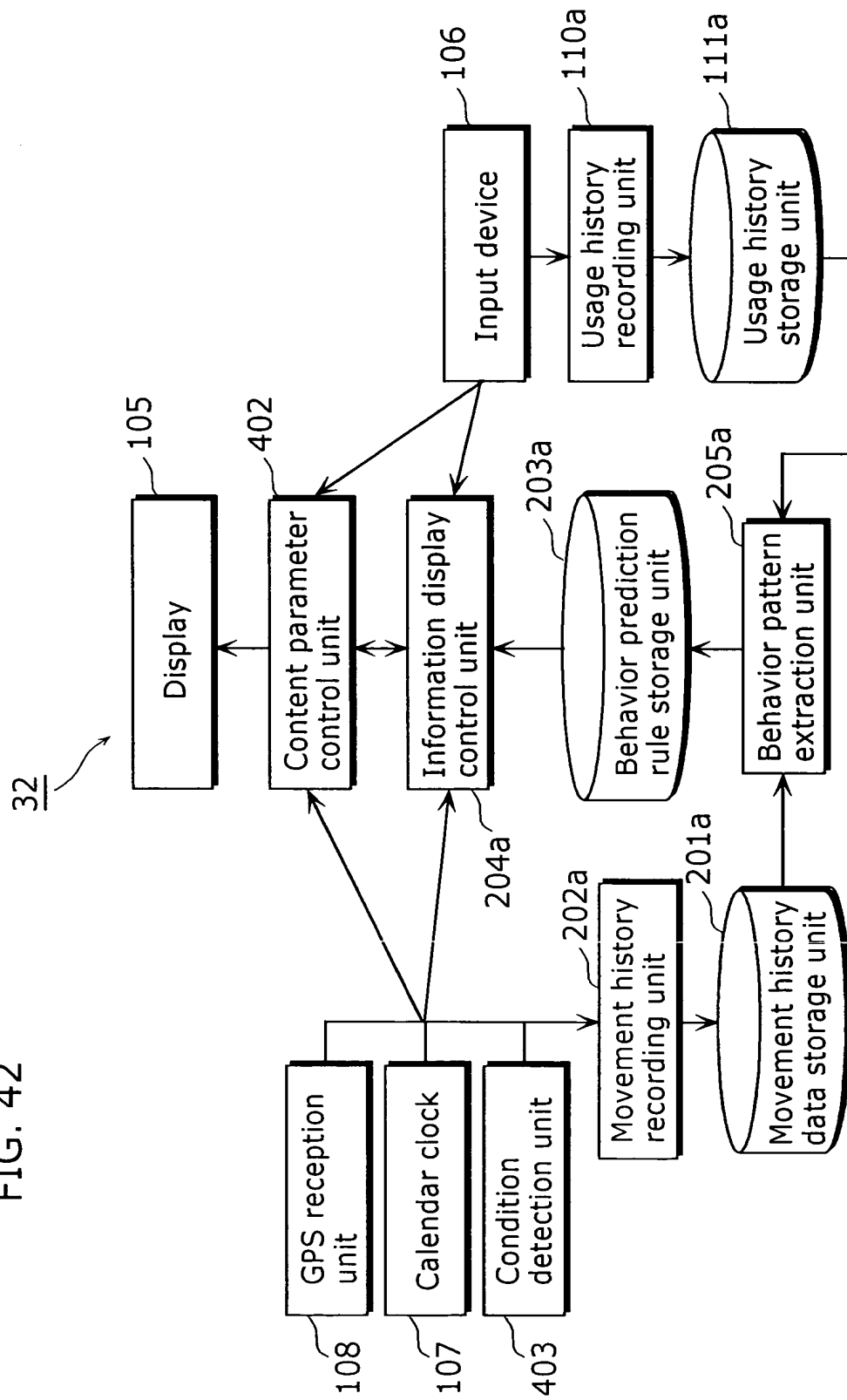
Title: Coming home soon

Message:

I've just left the office.

Please prepare meal for me.

FIG. 42



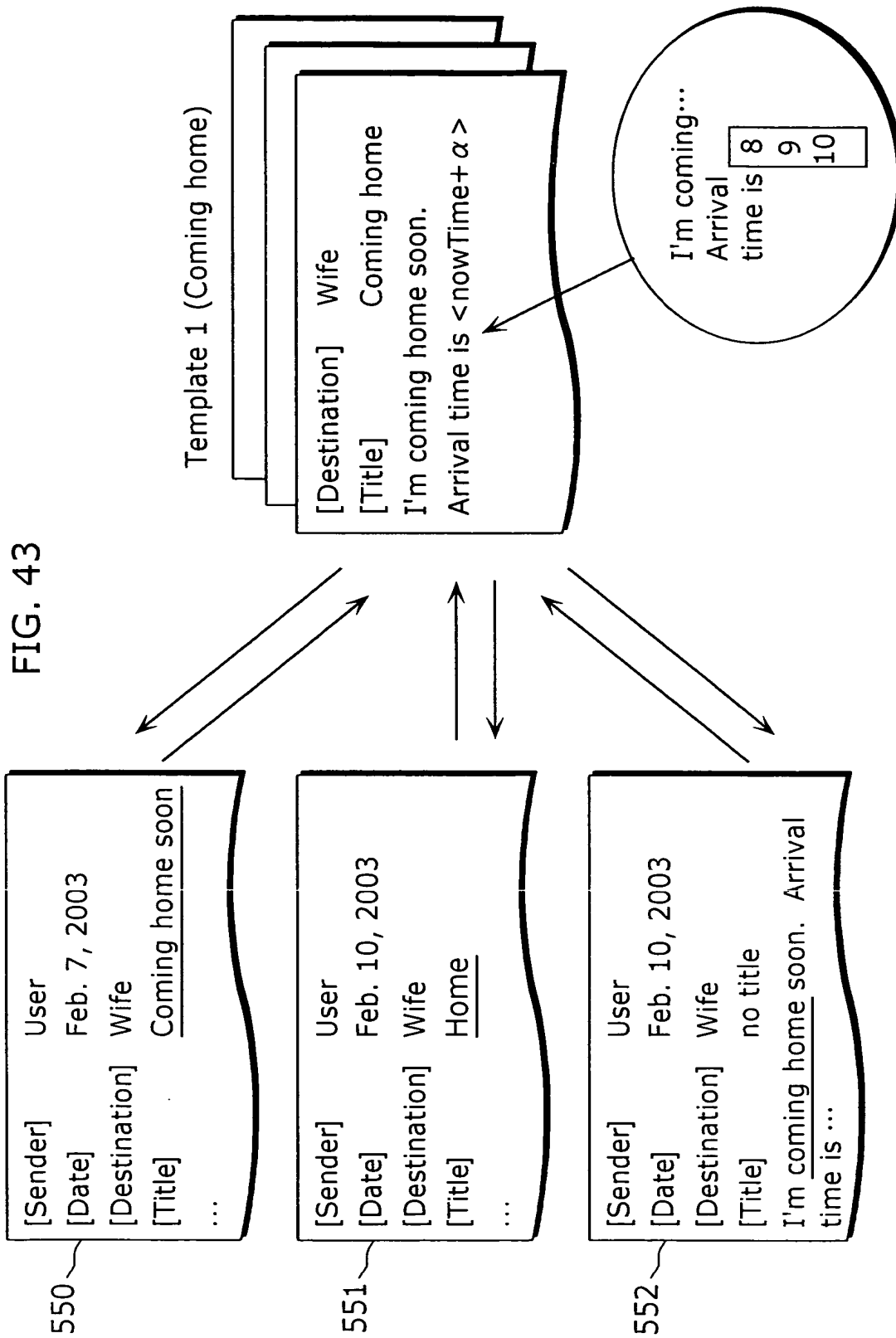


FIG. 44

Usage date & time	Usage route	Weather condition	Usage history
501 (Fri) Feb. 7, 2003 20:00	Office → Station	Weather: Fair <...> ...	Used application: e-mail
			Destination address: <u>kazoku@xyz.ne.jp</u> (to Wife)
			Template 1 (Coming home 1)
			Title: Coming home soon
			Outgoing message: I've just left the office. Arrival time will be around 21:00.
502 (Mon) Feb. 10 2003 20:00	Office → Station	Weather: Rainy <...> ...	Used application: e-mail
			Destination address: <u>kazoku@xyz.ne.jp</u> (to Wife)
			Template 2 (Coming home 2)
			Title: Coming home soon
			Outgoing message: I've just left the office. Please come and pick me up at the station around 20:40.

FIG. 45

Usage situation	Application	Contents	Number of uses
Time: Weekday night Location: Office → Station Weather: Fair	E-mail	Destination address: Wife	50
		Template 1: (Coming home 1)	
		Title: Coming home soon	
		Outgoing message: I've just left ...	
Time: Weekday night Location: Office → Station Weather: Rainy	E-mail	Destination address: Wife	25
		Template 2 (Coming home 2)	
		Title: Coming home soon	
		Outgoing message: I've just left ... pick me up at the station ...	
...	TV	...	30
Weather: Rainy	E-mail	Destination address: Son	15
		Template 3 (Pickup)	
		Title: Shall I pick you up?	
		Outgoing message: ... pick you up at AA station at 20:00 ...	
Location: Station → Supermarket	E-mail	Destination address: Wife	15
		Template 5 (Shopping)	
		Title: Shopping	
		Outgoing message: ... make a stop at Supermarket AA ...	
...	

FIG. 46

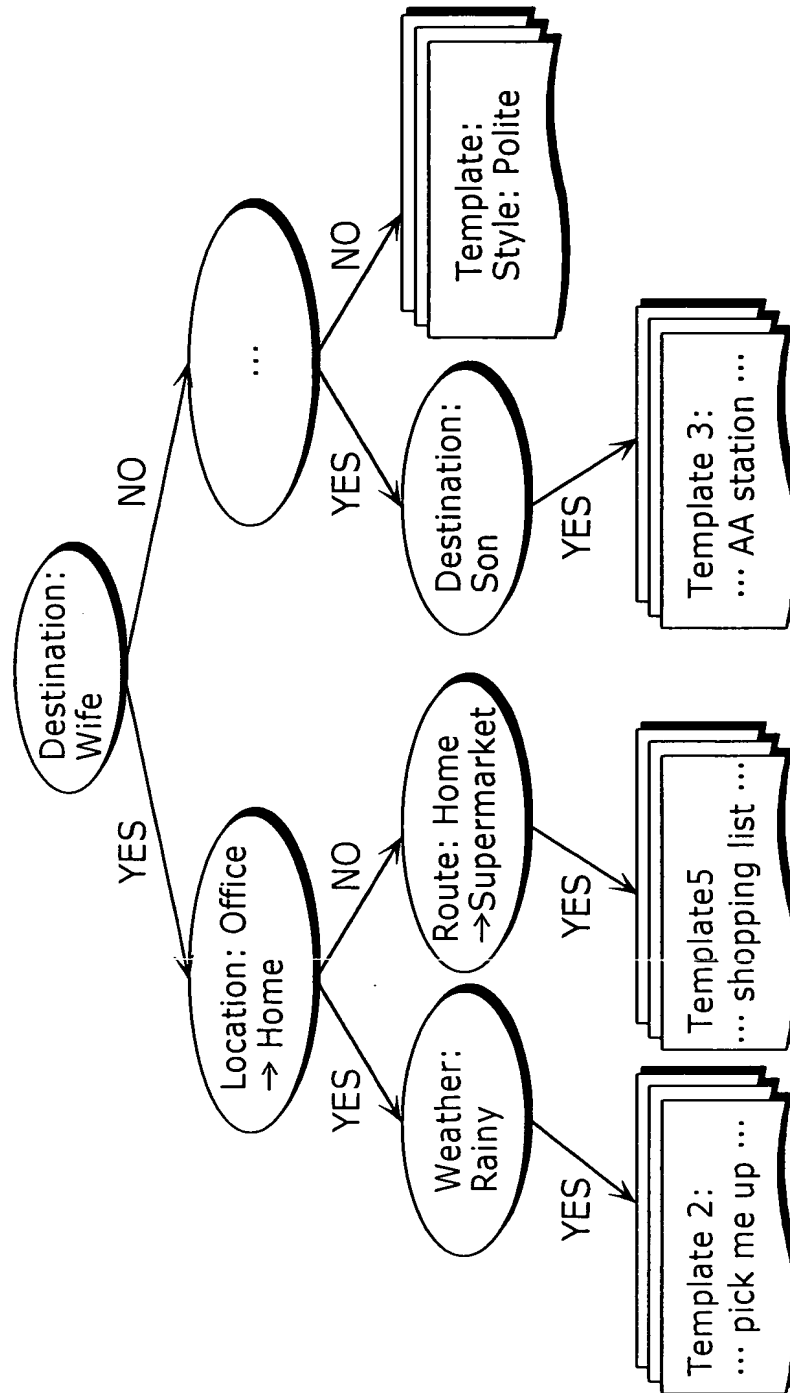
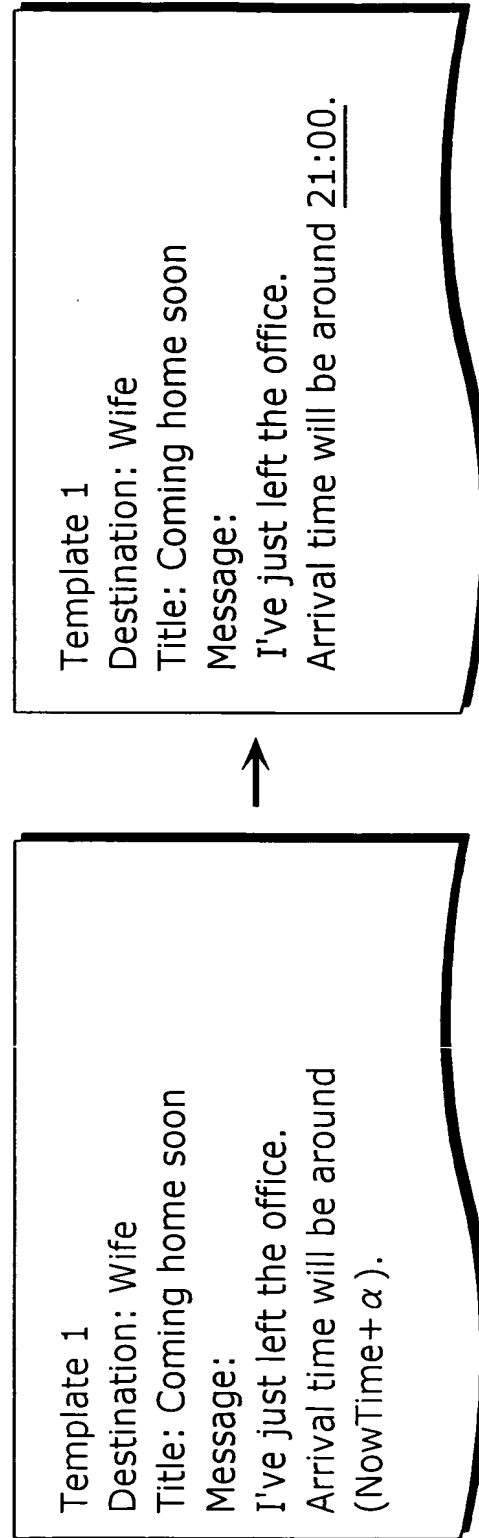


FIG. 47



$$\begin{aligned}\text{Arrival time} &= \text{NowTime} + \alpha (=1) \\ &= 20:00 + 1:00\end{aligned}$$

FIG. 48A

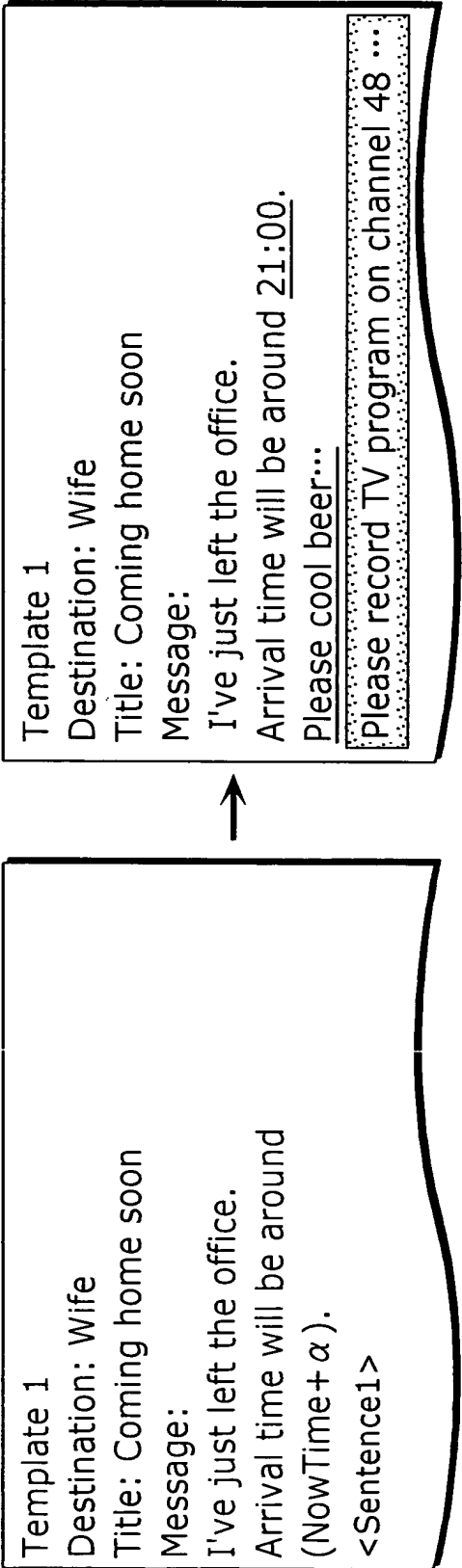


FIG. 48B

Content	Content parameter	
Template 1 (Coming home)	<Arrival time NowTime + α >	$\alpha = 1$
	<Sentence1>	Please cool beer. (Number of uses: 20)
		Please record TV program on channel 48. (Number of uses: 10)
Template	<...>...	...

FIG. 49

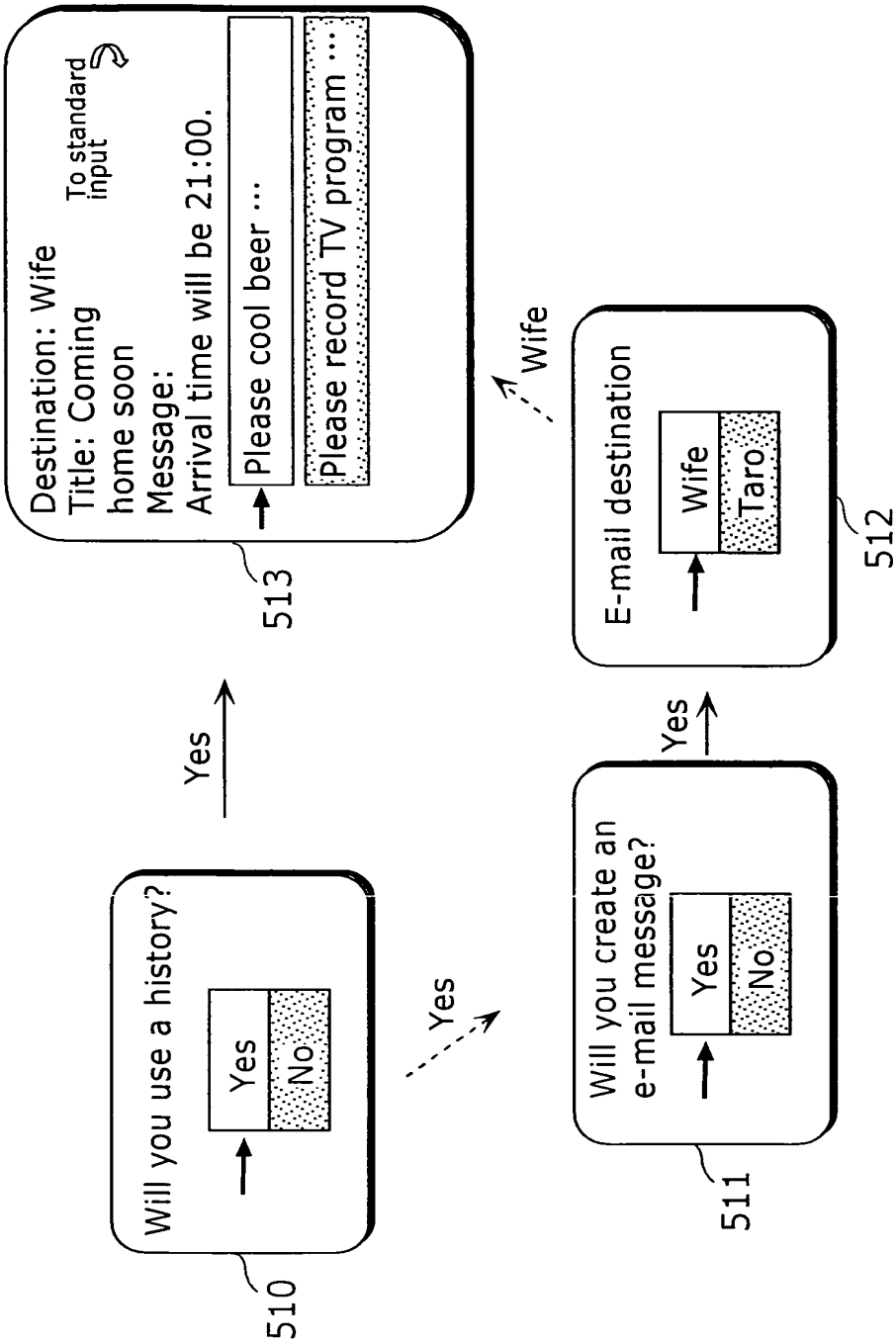


FIG. 50

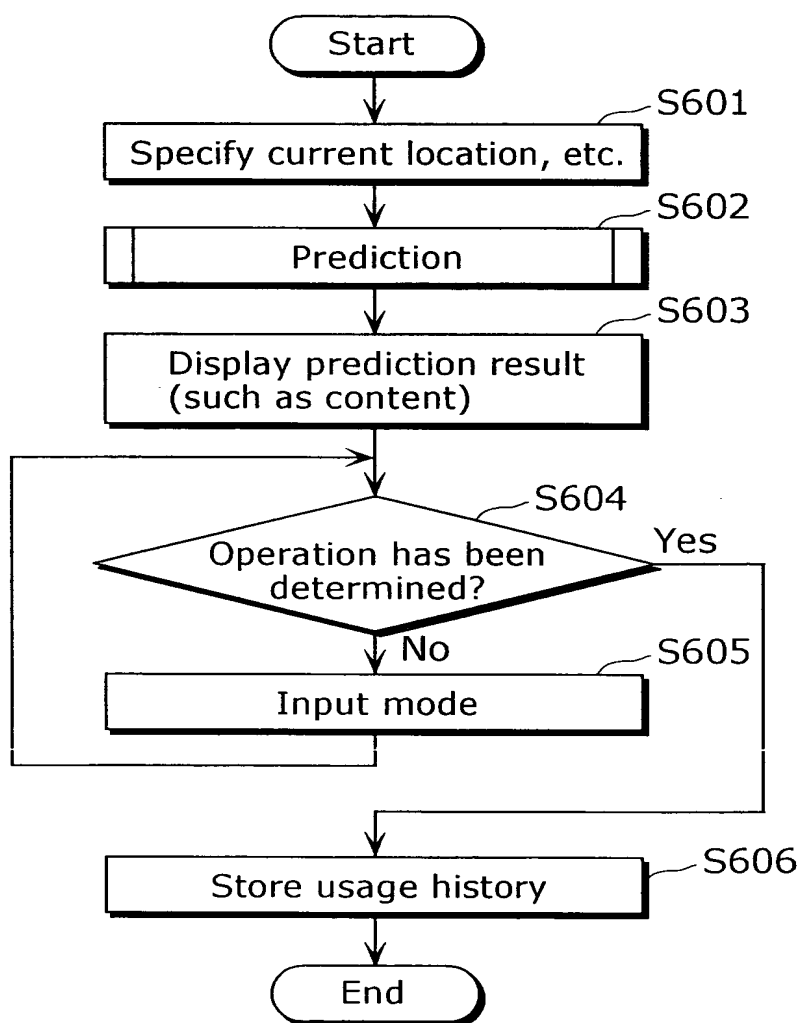


FIG. 51

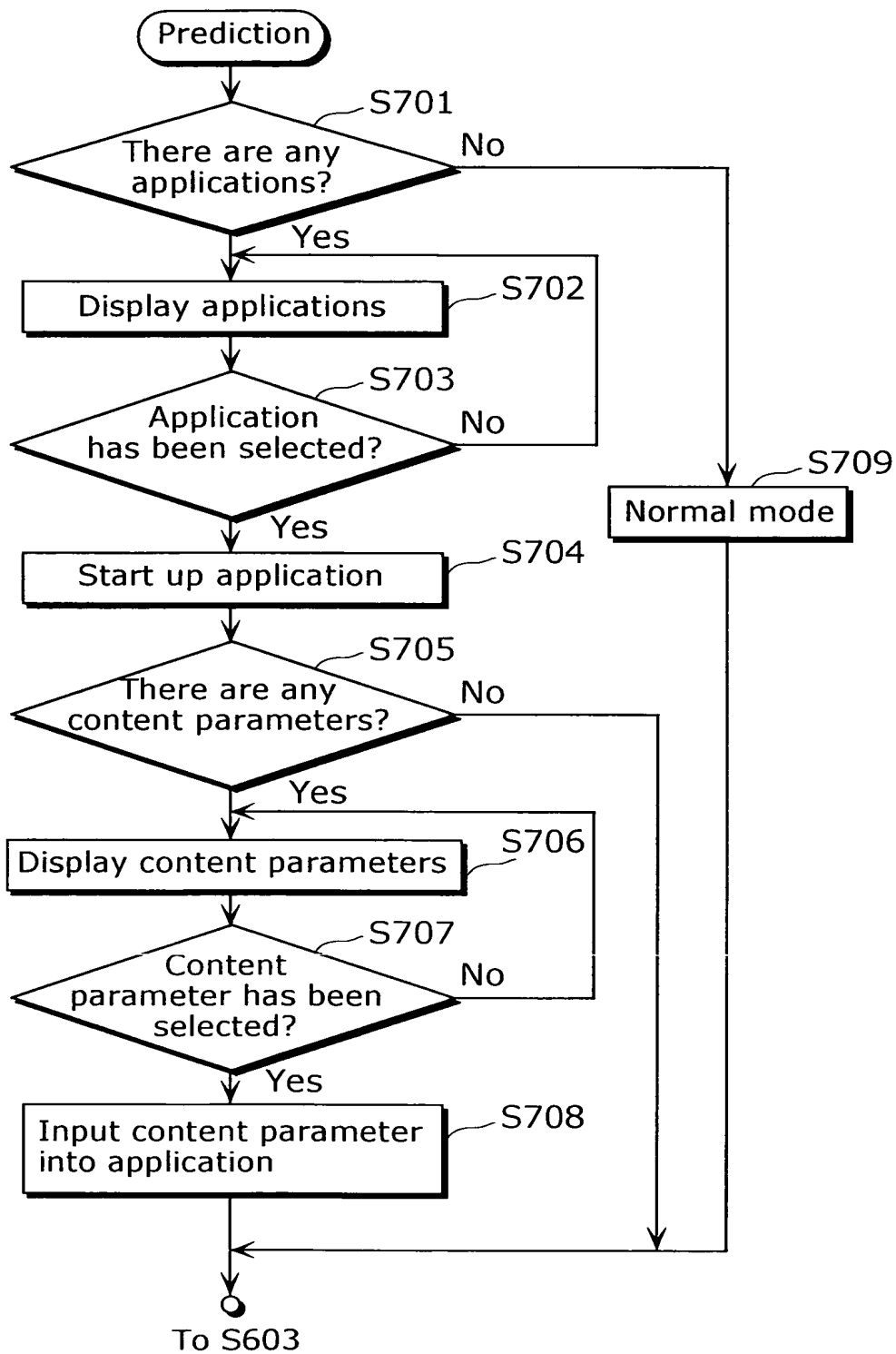


FIG. 52

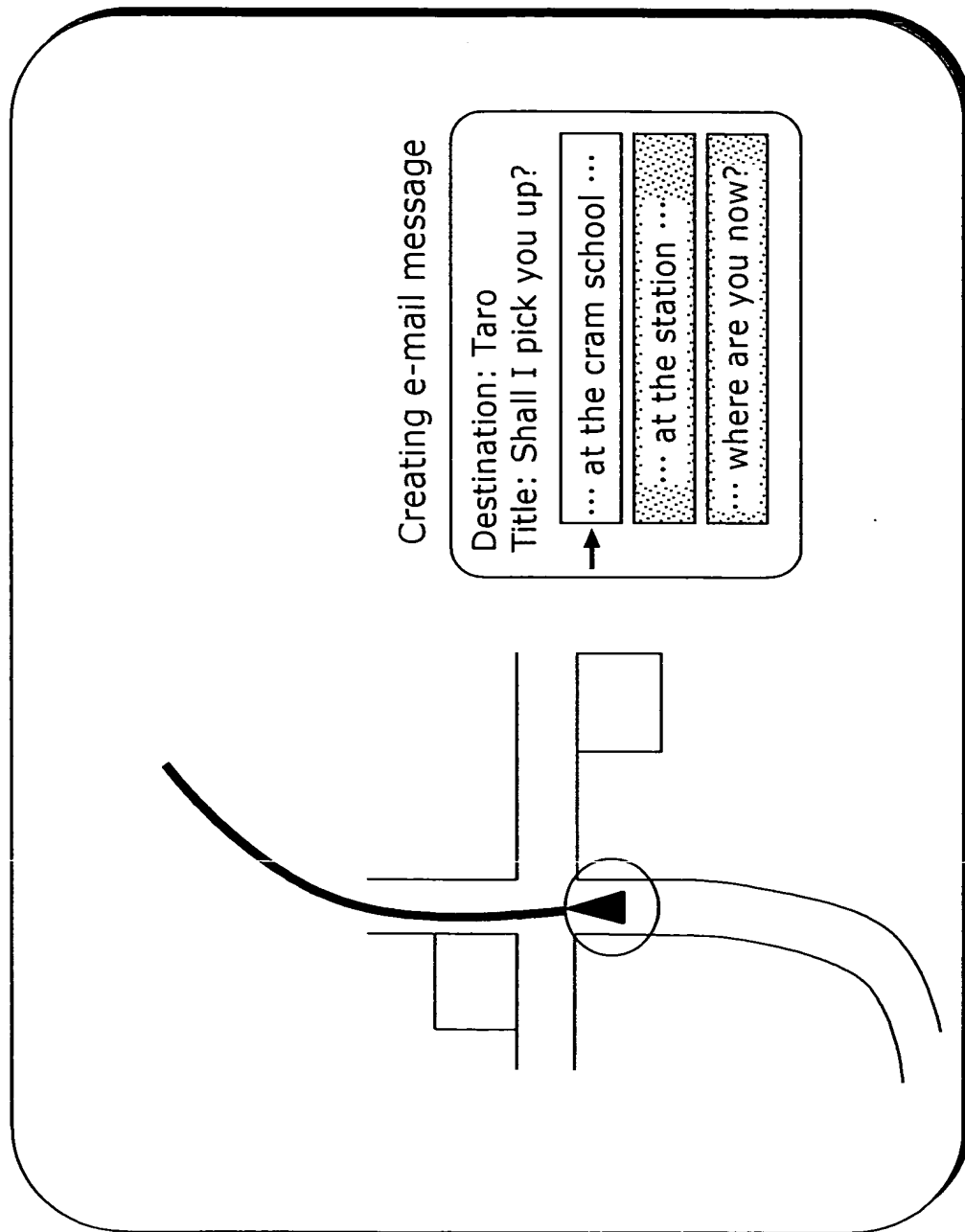


FIG. 53

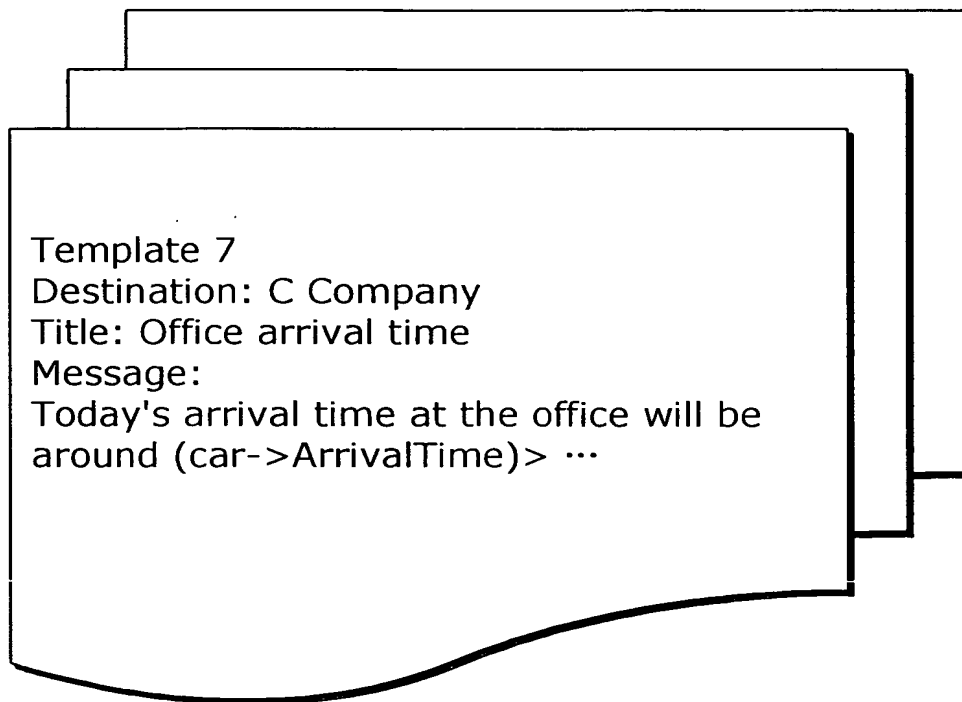


FIG. 54

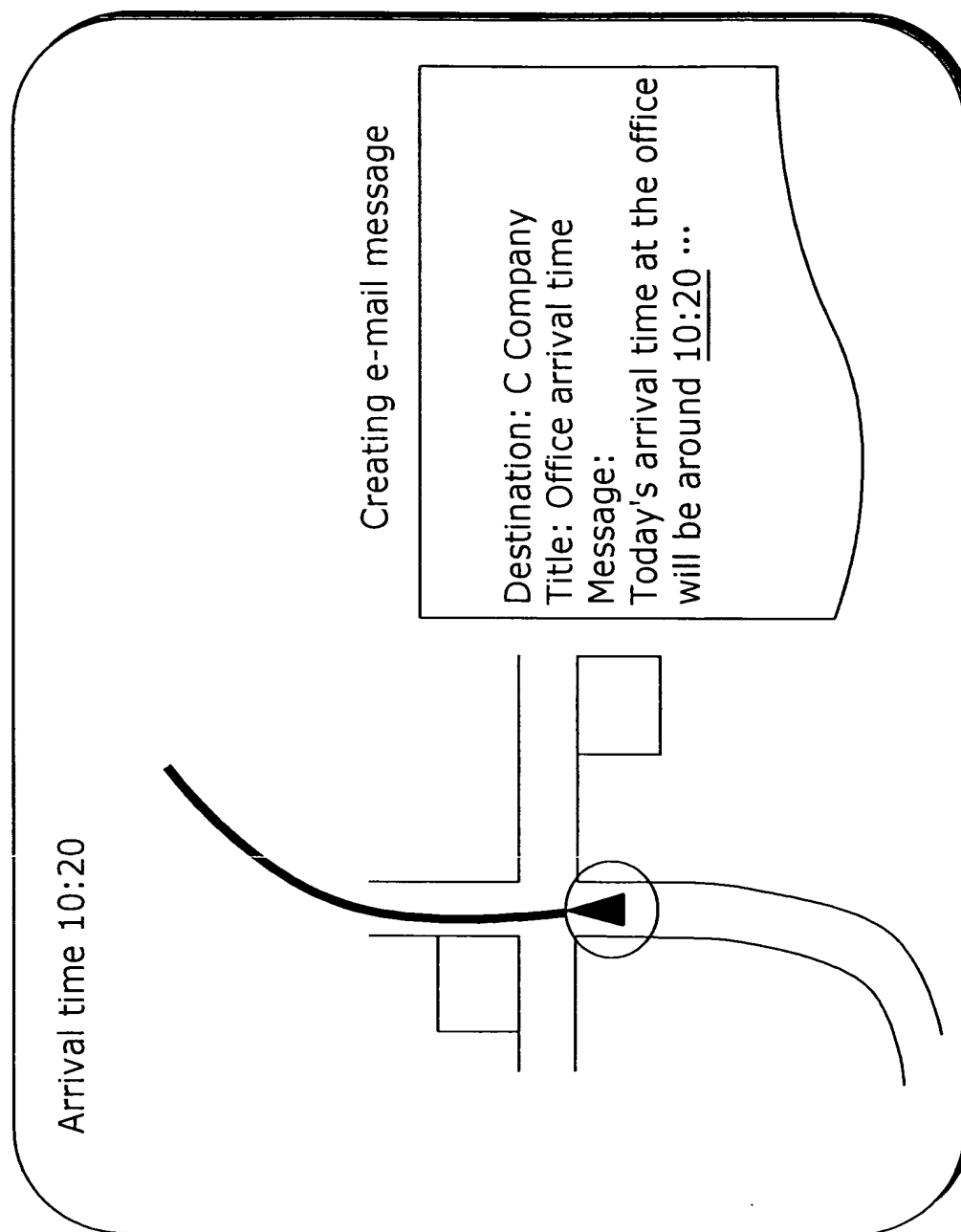


FIG. 55

Usage situation	Application	Content	Number of uses
Time: Weekday daytime Location: AA station →BB station <...>	TV	Ch8: AB news	50
		Volume: 75	
		Mode: 480×320	
Time: Weekday night Location: AA station →BB station <...>	General	Manner mode	25
		Reception-permitted party: C Company	
		Reception-rejected party: None	
		...	
Time: Weekday Location: Office <...>	General	Manner mode	25
		Reception-permitted party: Family member	
		Reception-rejected party: Others	
		...	
Location: Movie theater		Manner mode	
...	

FIG. 56

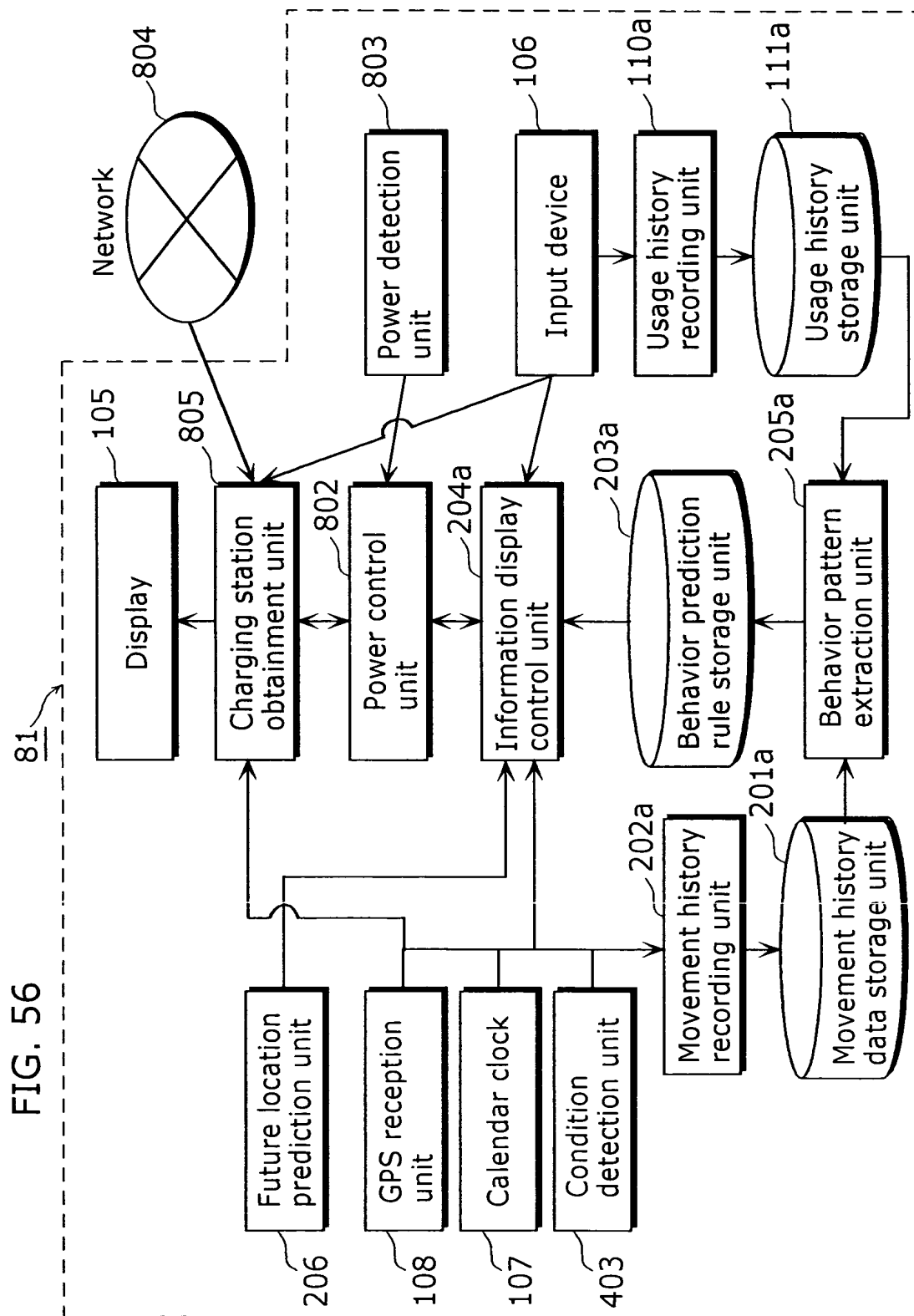


FIG. 57

Usage situation	Application	Content parameter	Number of uses
Time: Weekday night Location: Office → Station <...>	Music player	Album to be played back: CD1	50
		Music to be played back: track 5	
		Volume: 75	
		Usage duration: 20 minute	
Time: Weekday night Location: Office → Station <...>	TV	Program to be reproduced: AB news	25
		Reproduction mode: ... 480 × 320	
		Volume : 50	
		Usage duration: 60 minutes	
Time: Weekday night Location: AA station → BB station <...>	Music player	...	15
		Usage duration: 20 minutes	
Time: Weekday night Location: BB station → Home <...>	E-mail	Destination address: Wife	15
		Template 5 (Shopping)	
		Title: Shopping	
		Outgoing message: I will go to supermarket ...	
Time: Holiday daytime Location: Home	Game	Content: CD race	15
		Data: ...	
		Usage duration: 40 minutes	
	...		

FIG. 58

Date & Time Location	Destination	Number of movements	Movement probability
Date & time: Weekday night Location: Office→AA station	AA station→BB station	190	95%

Date & time: Holiday daytime Location: Home	G station	101	92%

Date & time: Weekday morning Location: Home	BB station→AA station	190	95%

FIG. 59

Power consumption table 853

Application	Content parameter	Power coefficient
Music player	Volume 75	3
TV	FineMode, Volume 50	5
Movie player		4
Game	AA racing	3
Picture display	1 frame	0.1

FIG. 60

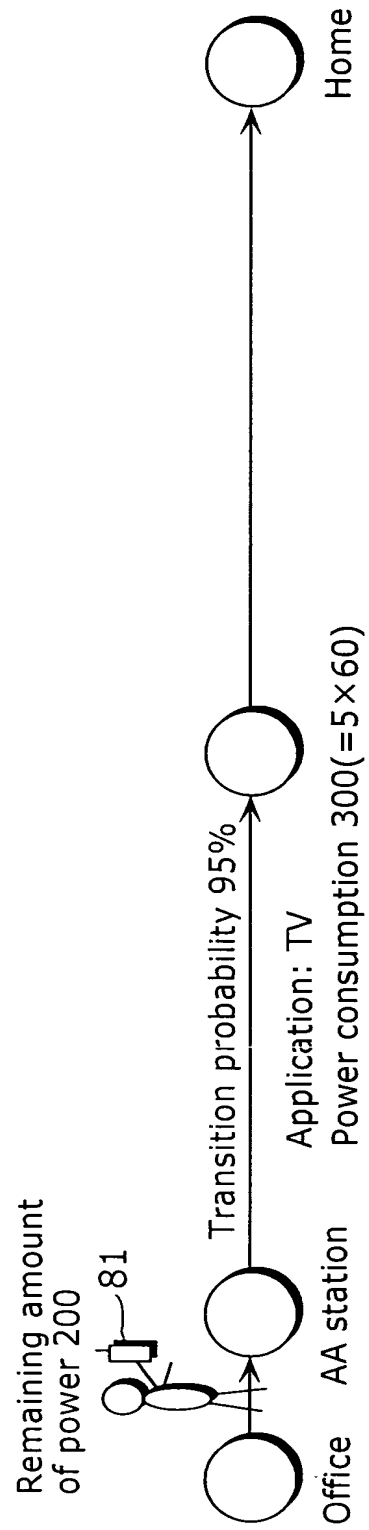


FIG. 61

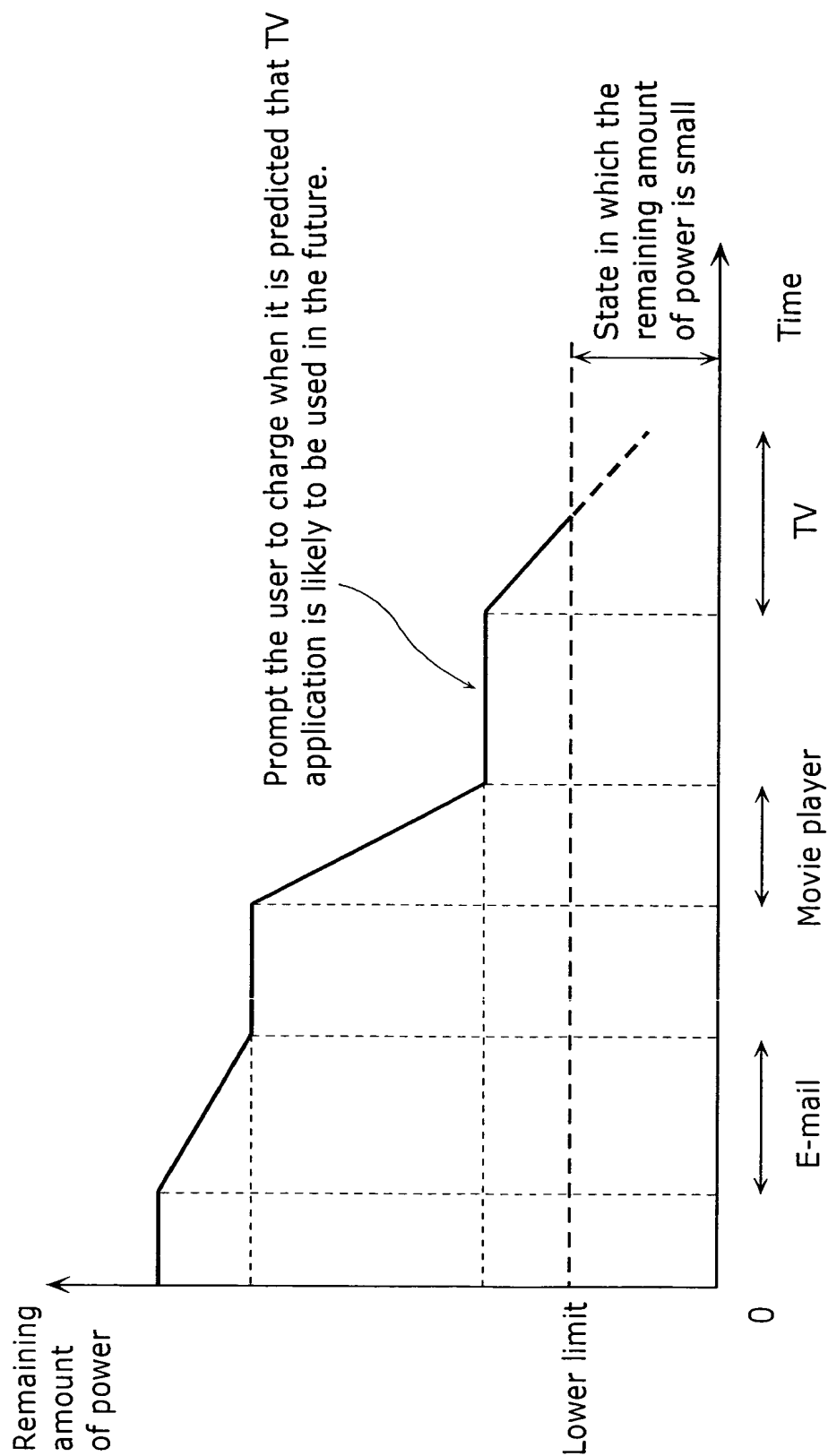
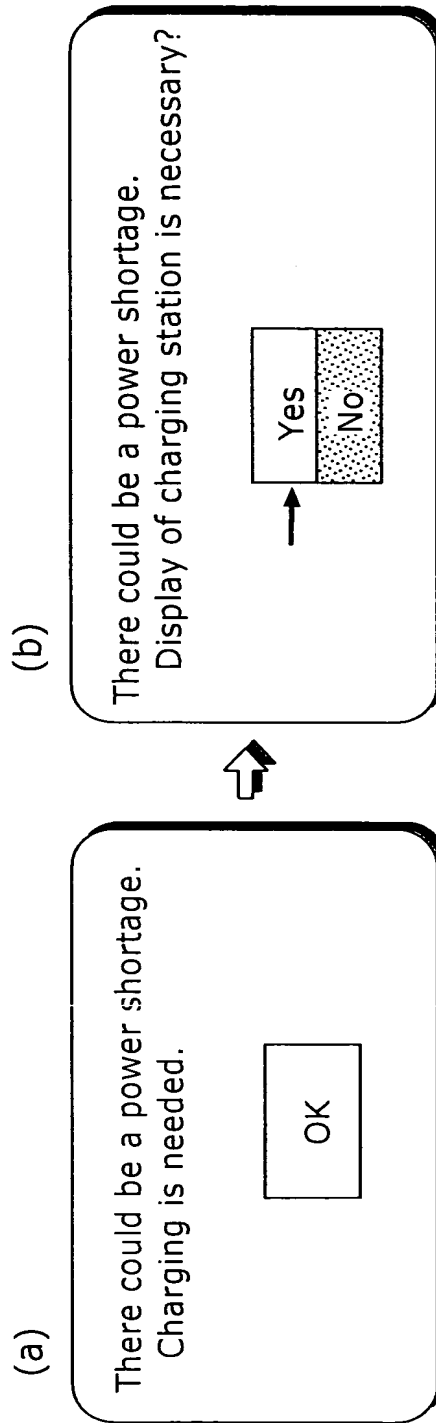


FIG. 62



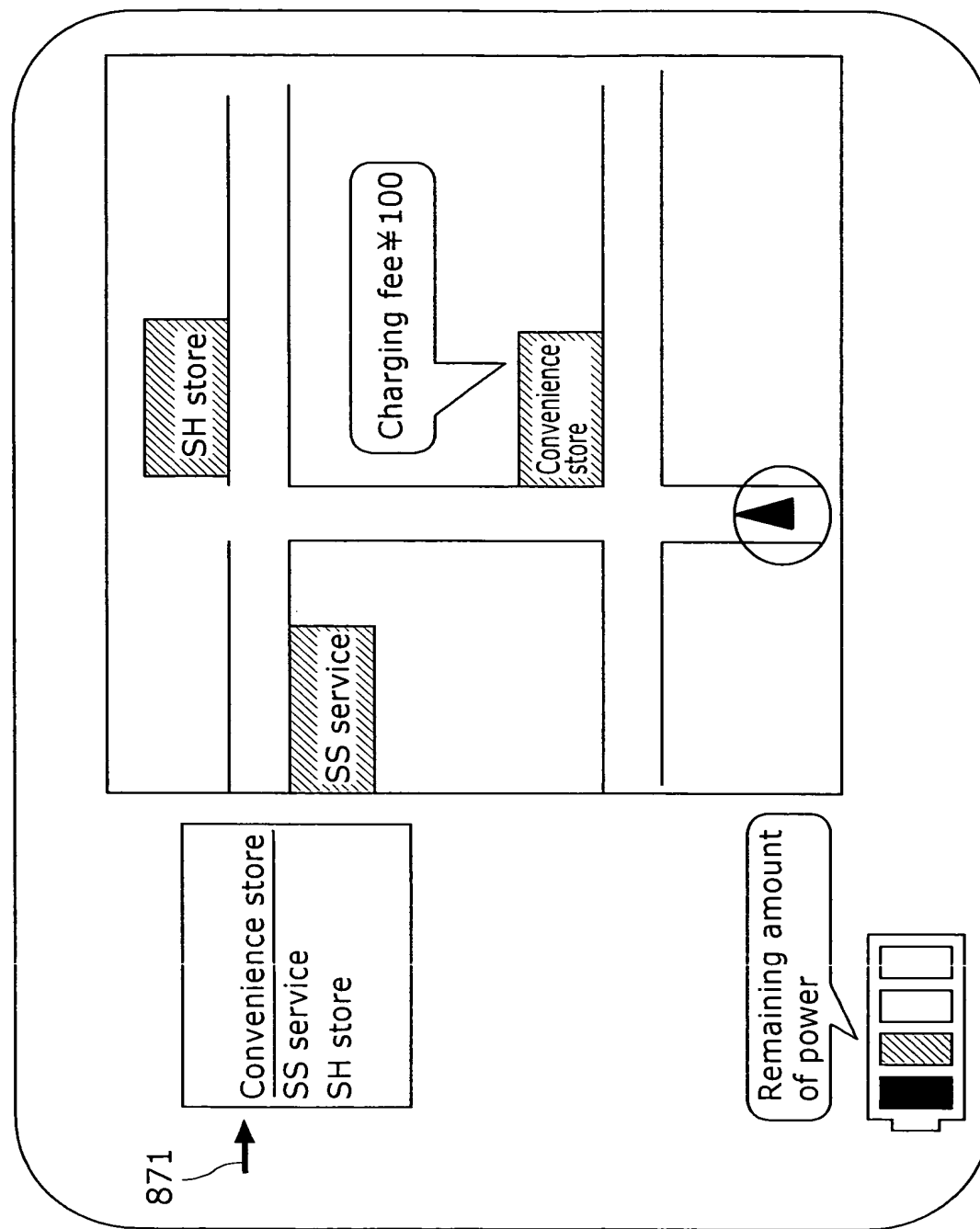
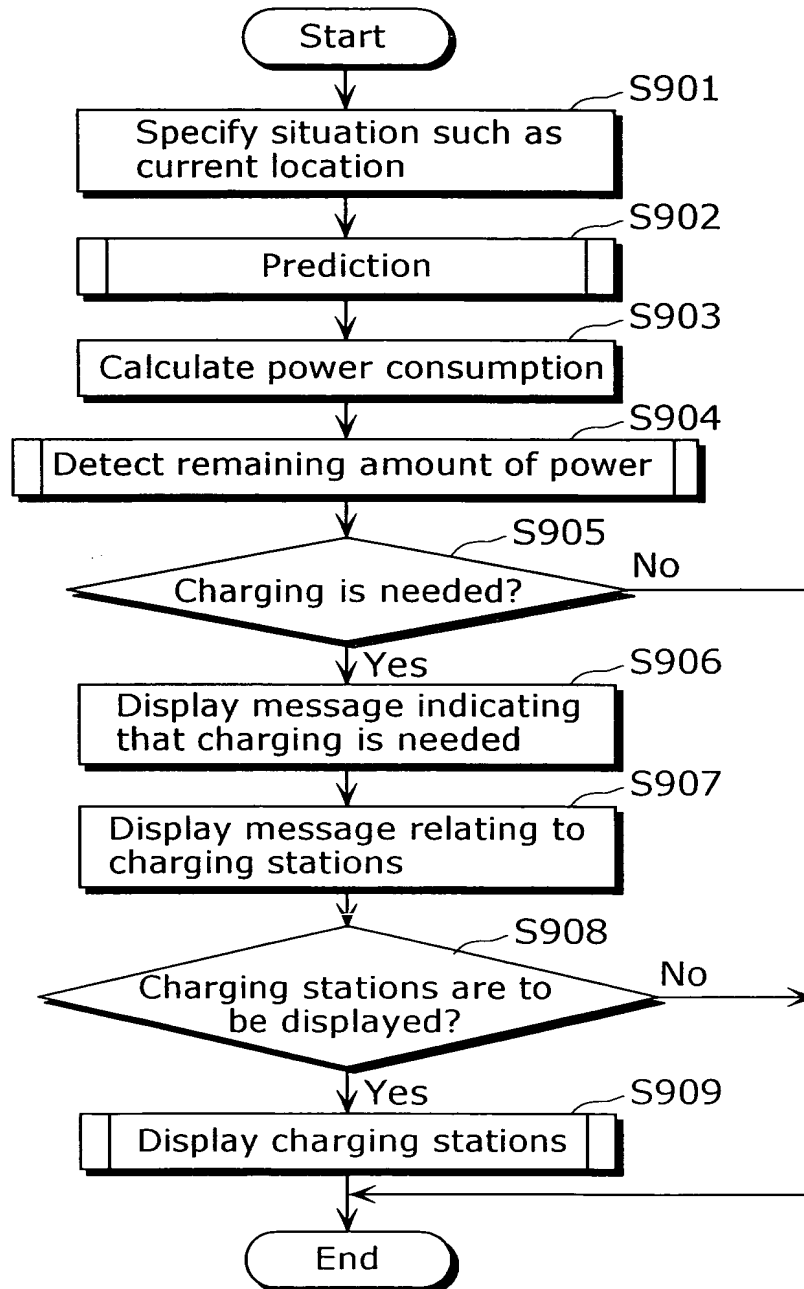


FIG. 63

FIG. 64



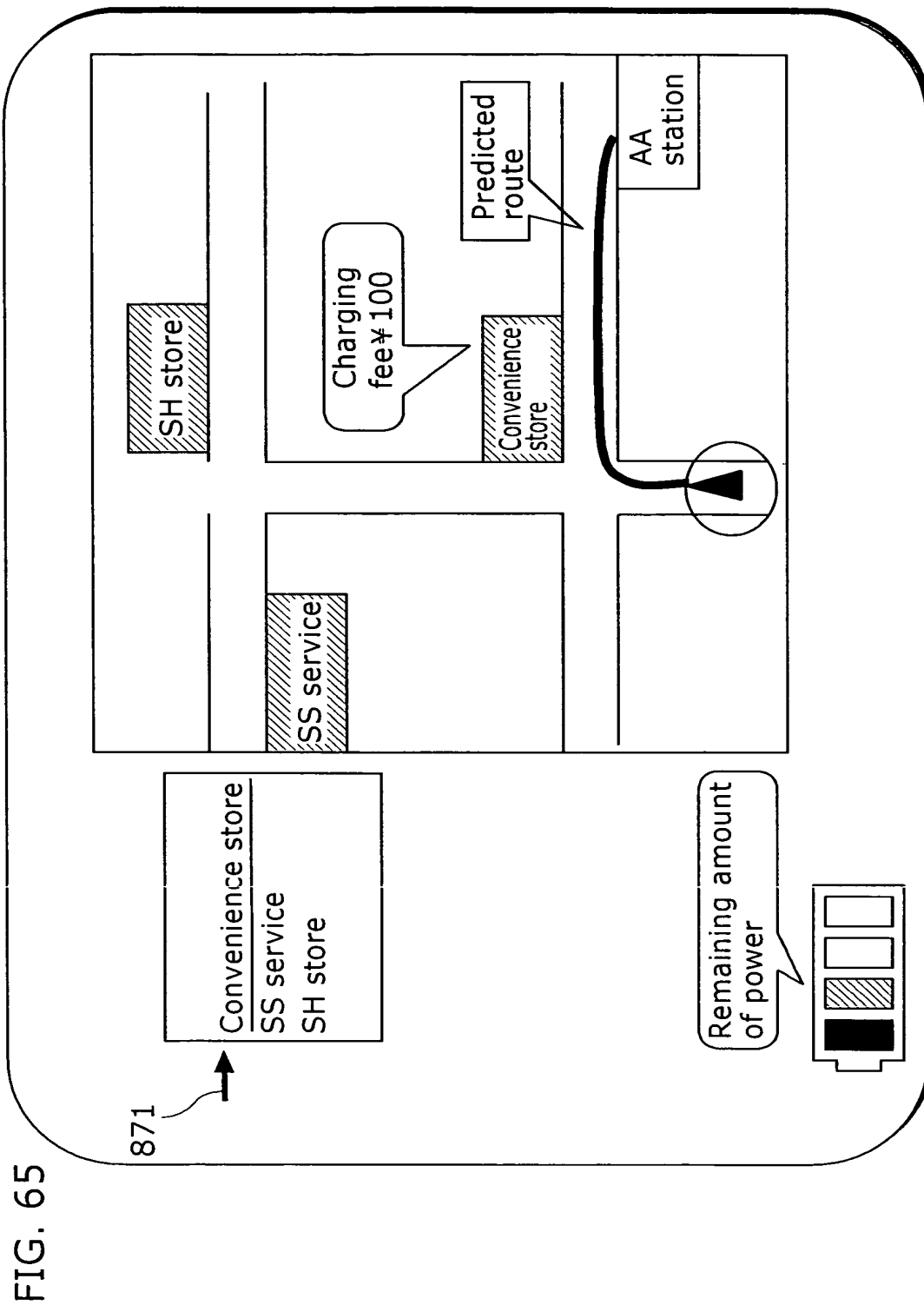
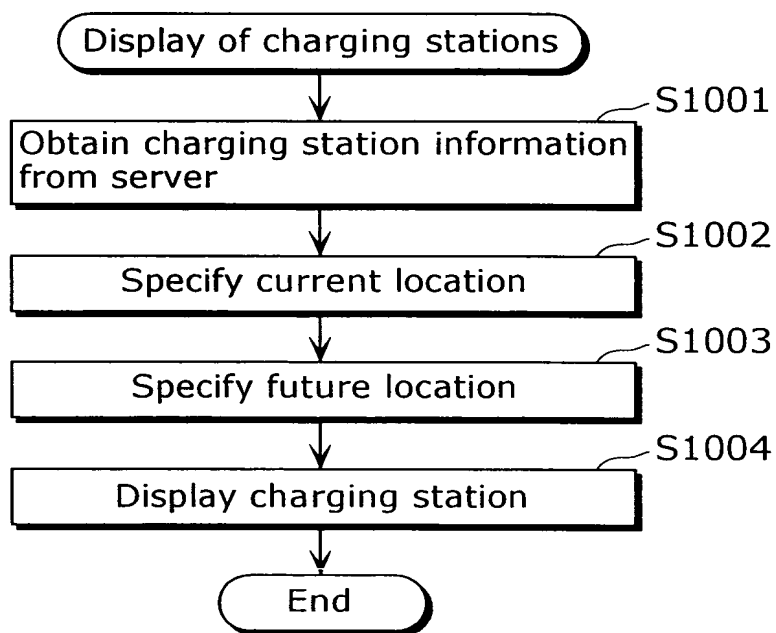


FIG. 66



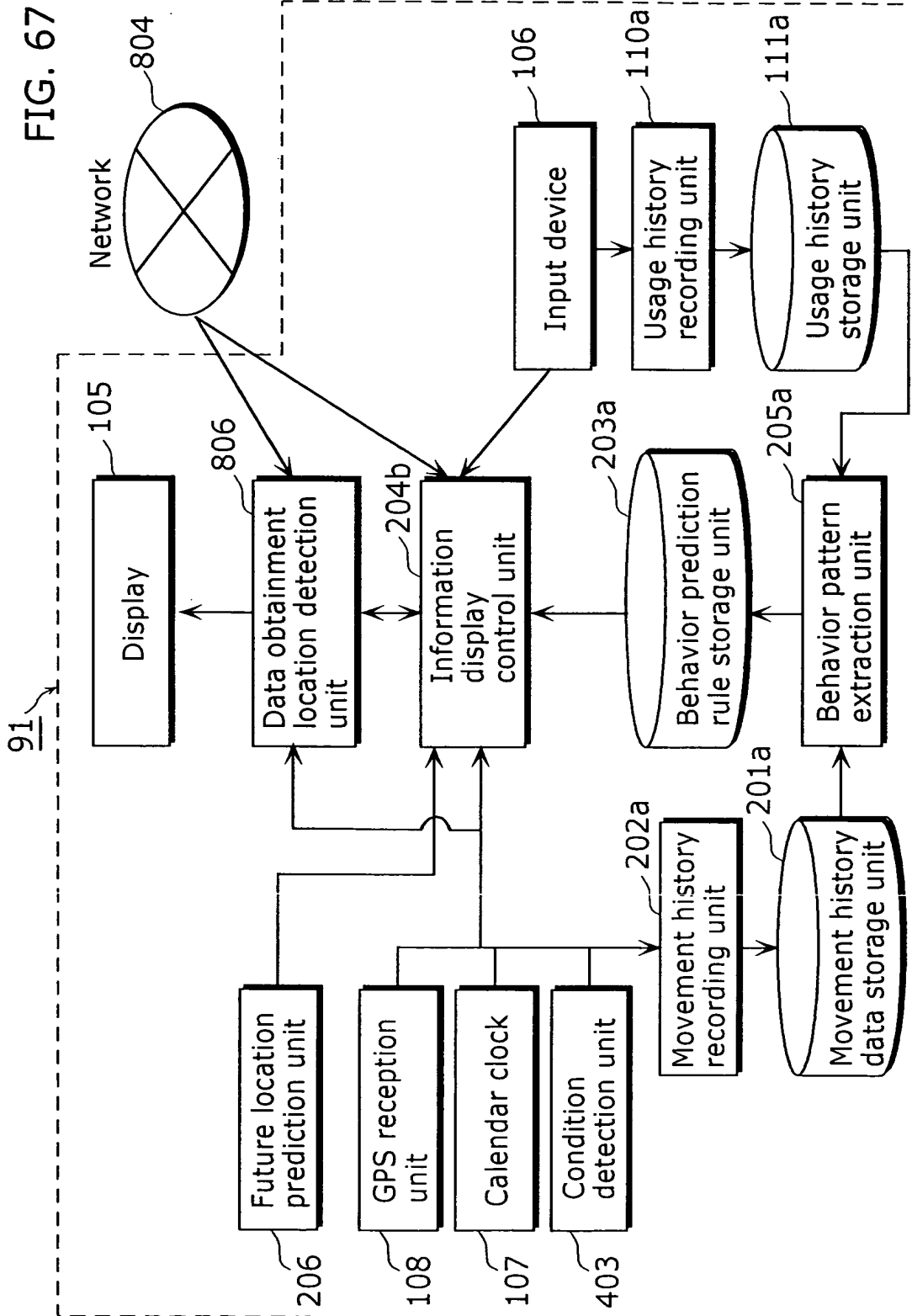


FIG. 68

Usage situation	Application	Content parameter	Number of uses
Time: Weekday night Location: Office → Station <...>	Music player	Album to be played back: <u>CountDown100</u> (to be obtained)	50
		Number to be played back: track5	
		Volume : 75	
		Usage duration: 20 minutes	
Time: Weekday night Location: AA station → BB station <...>	Movie player	Program to be reproduced: AB stock news (to be obtained)	25
		Reproduction mode:...480×320	
		Volume : 50	
		Usage duration: 60 minutes	
Time: Weekday night Location: AA station → BB station <...>	Game	Content: CD match race	15
		Character data (to be obtained)	
		...	
		Usage duration: 20 minutes	
Time: Weekday night Location: BB station → Home <...>	Game	Content: EF match race	15
		Data	
	...		

FIG. 69

No music to be played back is held.
Is display of download place needed?

→

Yes
No

FIG. 70

Music to be played back has been updated.
Is display of download place needed?

→

Yes
No

FIG. 71

Download place list data

Data name	Place	Fee to be billed	Coupon
Program to be reproduced: AB stock news	Latitude N1, Longitude E1 1 km in radius	¥10/kbyte	1 point
	Latitude N2, Longitude E2 0.5 km in radius		
Album to be played back: Count Down100	Latitude N3, Longitude E2 Download machine	¥20/kbyte	2 points
	Latitude N4, Longitude E4 0.3 km in radius		
Town information	Latitude N5, Longitude E5 Download machine	¥100/kbyte	3 points

FIG. 72A

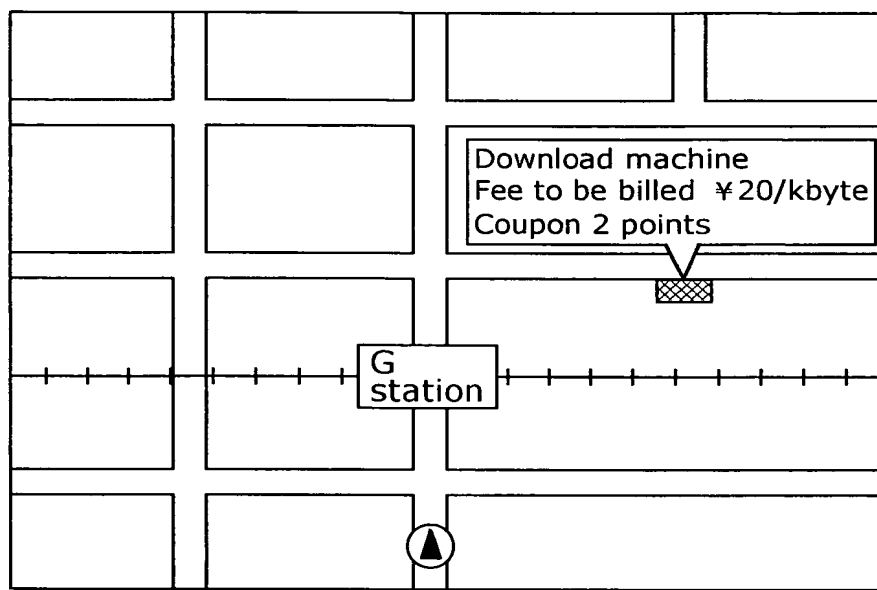


FIG. 72B

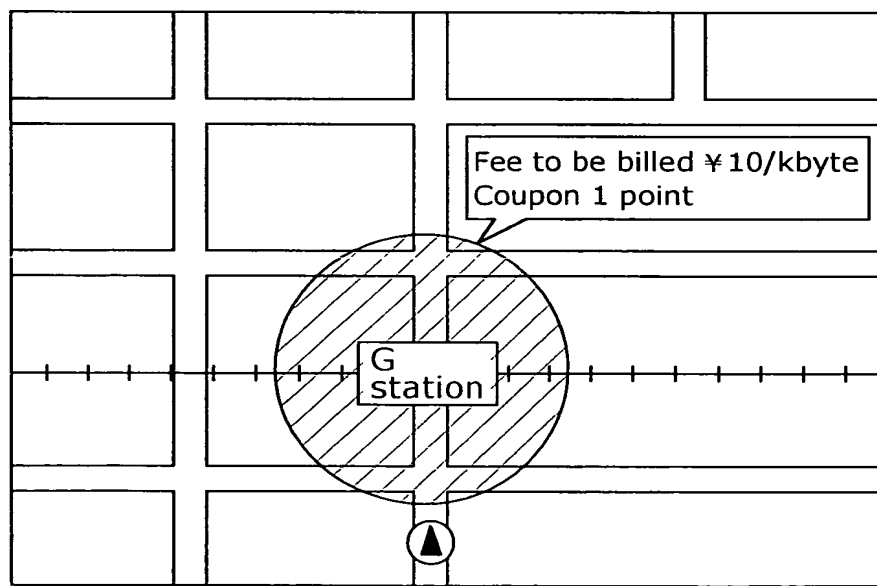


FIG. 73

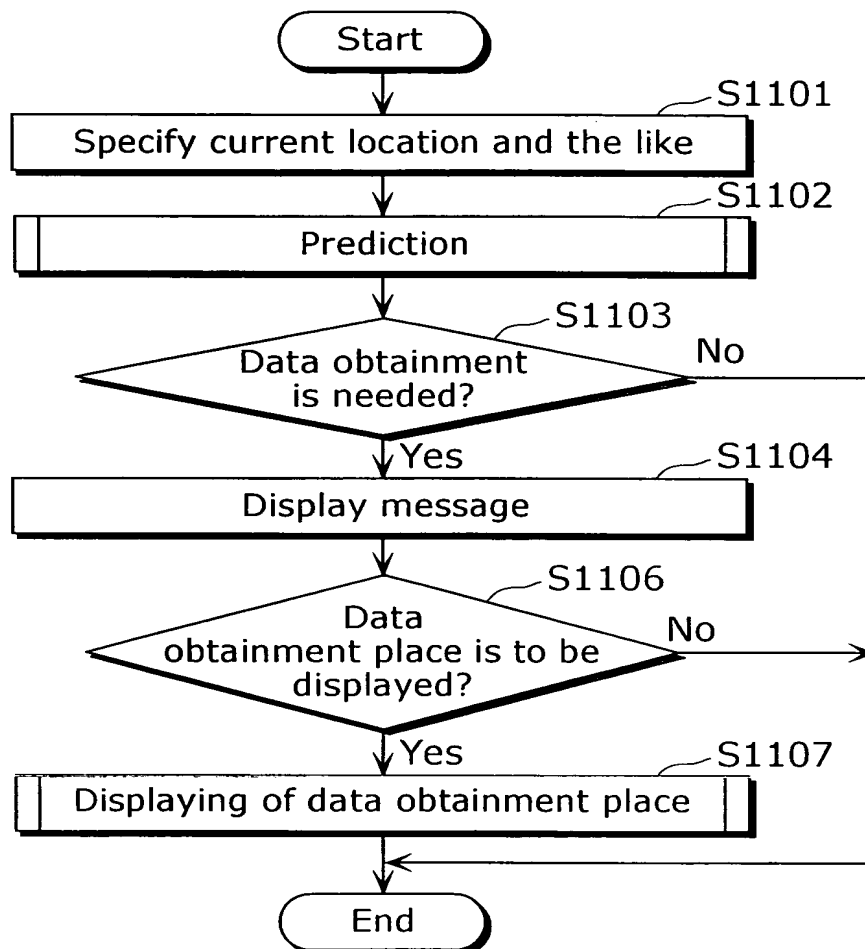


FIG. 74

